

EDF No.: EDF-3535 EDF Rev. No.: Rev. 0 Project File No.: _____

1. Title: CPP-603 Basins – Fissile Material in Particulate Form based on ^{137}Cs to ^{235}U Ratio		
2. Index Codes: Building/Type <u>CPP-603</u> SSC ID _____ Site Area <u>INTEC</u>		
3. NPH Performance Category: _____ or <input checked="" type="checkbox"/> N/A		
4. EDF Safety Category: _____ or <input checked="" type="checkbox"/> N/A SCC Safety Category: _____ or <input checked="" type="checkbox"/> N/A		
<p>5. Summary:</p> <p>The purpose of this engineering design file is to provide documentation of the results of measurements of gamma-ray-emitting radionuclide indicators of fissile material in particulate form in the CPP-603 north, middle and south basins and transfer channel and ancillary pools. It is based on ^{137}Cs data only as measured by Sodium Iodide (NaI) and Cadmium-Zinc-Telluride (CZT) detectors using a conservative estimate of the ^{137}Cs to ^{235}U ratio based on TRIGA fuel rod burnup. The basins were initially scanned using NaI detectors, those locations not measurable using NaI detectors due to high activity were scanned using CZT detectors. Specific deliverables are to provide a measure of the inventory of fissile material in the basins, to assess the uncertainties associated with these measurements as much as possible, and to provide maps of the distribution of the radionuclide used to determine fissile material content. The foundation for this work is presented in several previous EDFs including the System Feasibility Study¹, the Basin Scanning System SO Test Requirements², the CPP-603 Rack Scanning System SO Test/Preliminary Calibration Report³, the CPP-603 Basin Scanning System SO Test Report/Preliminary Calibration Report⁴, and the CPP-603 High Rate Basin Scan System SO Test/Calibration Report⁵.</p> <p>The objective of basin scanning was to determine the presence and location of irradiated reactor fuel plates, rods, pellets greater than or equal to 0.5 g fissile (the 0.5g detection capability was necessary to meet the Material Control and Accountability requirements of DOE Order 474.1) that may be located on the floor of the basins and the various transfer areas around the basins in support of further Deactivation, Decontamination & Decommissioning (DD&D) activities.</p> <p>Results of these measurements indicate that total inferred particulate fissile material in the various basins, channels, and pools in CPP-603 measured by the NaI detector is 3734.51 ± 27.38 grams with a 95% confidence level, and that measured by the CZT detector is 79.13 ± 8.44 grams with a 95% confidence level, both based on the ^{137}Cs analysis, an assessment of systematic uncertainties and the TRIGA fissile material analysis results⁶, for a total of 3813.64 ± 28.65 grams.</p> <p>The NaI and CZT data represent subsets of the basin floor source term. The NaI survey data are the values collected from the majority of the floor area. The CZT values are those from spectra acquired from locations where activity was too great to yield a conclusive result with the NaI detector. In conclusion, the sum of the two survey data sets is the uranium source term that can be inferred from Cesium-137 activity.</p>		

ENGINEERING DESIGN FILE

01/30/2004

Page ii of 123

6. Review (R) and Approval (A) and Acceptance (Ac) Signatures: (See instructions for definitions of terms and significance of signatures.)				
	R/A	Typed Name/Organization	Signature	Date
Performer/ Author	N/A	Leo A. Van Ausdeln, D. W. Akers, Dawn M. Scates		
Independent Peer Reviewer	R	J. K. Hartwell		
Reviewer	R	D. L. Fillmore		
Reviewer	R	M.A. Ebner		
Requestor	Ac	P. L. Winston		
Approver	A	Brad L. Swanson		
Criticality Safety	A	P. Sentieri		
Approver	A	R. E. Simonds		
Doc. Control				
7. Distribution: (Name and Mail Stop)	See attached.			
8. Does document contain sensitive unclassified information?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
If Yes, what category:				
9. Can document be externally distributed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
10. Uniform File Code:	7653.P.6.3.4		Disposition Authority: SS5	
Record Retention Period: Lifetime				
11. For QA Records Classification Only:	<input checked="" type="checkbox"/> Lifetime <input type="checkbox"/> Nonpermanent <input type="checkbox"/> Permanent			
Item and activity to which the QA Record apply:				
12. NRC related?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
13. Registered Professional Engineer's Stamp (if required)				

CPP-603 Basins – Fissile Content in Particulate Form – CZT scans**TABLE OF CONTENTS**

1	INTRODUCTION	1
1.1	Areas Scanned	1
1.2	Scanning Campaign	1
1.3	Scanning Equipment.....	1
1.4	Data Analysis.....	2
2	AREAS SCANNED	2
3	SCANNING CAMPAIGN.....	14
4	SCANNING EQUIPMENT.....	16
5	SO TESTING	17
6	DATA ANALYSIS METHODOLOGY	18
6.1	CZT Detector Efficiency Calibration.....	18
6.2	Nal Detector Efficiency Calibration	22
6.3	Mass/Activity ratio $^{235}\text{U}/^{137}\text{Cs}$	22
6.4	Measurement Uncertainties	22
6.4.1	Ultrasonic Measurement Uncertainty.....	22
6.4.2	Efficiency Calibration Uncertainty	23
6.4.3	Photopeak Area Uncertainty.....	23
6.4.4	Uncertainty in ^{137}Cs activity / ^{235}U mass ratio	23
6.4.5	Total Uncertainty	23
7	RESULTS	25
7.1	North Basin.....	25
7.2	Middle Basin	28
7.3	South Basin	31
7.4	South Basin Unload Pool.....	38
7.5	Transfer Channel	44
7.6	Loading Pits	47
7.6.1	Channel Leading to Loading Pits - CZT.....	49
7.6.2	North Loading Pit.....	51
7.6.3	South Loading Pit	52
7.7	Transfer Channel Decking	53
8	SUMMARY	55
	TABULATION OF MASS LOADING - Nal	58
8.1	North Basin.....	58
8.2	Middle Basin	81
8.3	South Basin	107
8.4	South Basin Unload Pool.....	110
8.5	Transfer Channel	111
9	REFERENCES	116

ENGINEERING DESIGN FILE

01/30/2004

Page iv of 123

TABLE OF FIGURES

Figure 1. CPP-603 Building Floor Plan	3
Figure 2. Map of Positions Scanned in the North Basin During the Basin Scanning Campaign	4
Figure 3. Map of Positions Scanned in the Middle Basin During the Basin Scanning Campaign.....	5
Figure 4. Map of Positions Scanned in the South Basin During the Basin Scanning Campaign. Gaps in coverage are due to access limitations from boxes, debris, piping, conveyor framework and other obstructions.	6
Figure 5. Map of Positions Scanned in the South Basin Unload Pool During the Basin Scanning Campaign. Gaps in coverage are due to crane access limitations caused by overhead obstructions, stands, boxes or platforms obstructing access.	7
Figure 6. Map of Positions Scanned in the Transfer Channel During the Basin Scanning Campaign. Non-uniformity of coverage is due to underwater obstructions. (mainly support pillars)	8
Figure 7. Map of Positions Scanned in the Channel to the Loading Pits and the Loading Pits During the Nal Basin Scanning Campaign. Non-uniformity of coverage is due to underwater obstructions. (mainly support pillars and decking)	9
Figure 8. Map of Positions Scanned in the Channel to the Loading Pits During the CZT Basin Scanning Campaign. Non-uniformity of coverage is due to underwater obstructions. (mainly support pillars and decking)	10
Figure 9. Map of Positions Scanned in the North Loading Pit During the CZT Basin Scanning Campaign.	11
Figure 10. Map of Positions Scanned in the South Loading Pit During the CZT Basin Scanning Campaign.	12
Figure 11. Map of Positions Scanned in the Transfer Channel Decking Area During the CZT Basin Scanning Campaign.	13
Figure 12. Basic Basin Scanning Configuration. Specific details may vary depending upon the area scanned, the detector used, whether the single or triple pack was used, or the ease of access for a specific location.	16
Figure 13. The Measured Efficiency in Air of CZT Detectors A407 and A529.....	19
Figure 14. The Measured Efficiency in Air of CZT Detectors A545, A546 and A547.	20
Figure 15. The Measured Efficiency in Air of All Six CZT Detectors measured 6" from the Source....	21
Figure 16. L_D versus Inferred Fissile Mass (>0.5 gm) for the North Basin as Determined During the Nal Scanning Campaign	26
Figure 17. L_D versus Inferred Fissile Mass (>0.5 gm) for the Middle Basin as Determined During the Nal Scanning Campaign	29
Figure 18. Map of Positions Scanned in the Middle Basin During the Basin Scanning Campaign. Inferred Fissile Mass Value >0.5 grams Identified During CZT Scanning Campaign is Indicated.	31
Figure 19. L_D versus Inferred Fissile Mass (>0.5 gm) for the South Basin as Determined During the Nal Scanning Campaign	33
Figure 20. Map of Positions Scanned in the South Basin During the Basin Scanning Campaign. Inferred Fissile Mass Values >0.5 grams Identified During Nal Scanning Campaign are Indicated. Inferred Fissile Mass Values >5 grams are Indicated Separately.	35

ENGINEERING DESIGN FILE

01/30/2004

Page v of 123

Figure 21. Map of Positions Scanned in the South Basin During the Basin Scanning Campaign. Inferred Fissile Mass Values >0.5 grams Identified During CZT Scanning Campaign are Indicated. Locations of High Eu-152 and Co-60 Activity are also Indicated.....	37
Figure 22. L_D versus Inferred Fissile Mass (>0.5 gm) for the South Basin Unload Pool as Determined During the Nal Scanning Campaign	39
Figure 23. Map of Positions Scanned in the South Basin Unload Pool During the Basin Scanning Campaign. Inferred Fissile Mass Values >0.5 grams Identified During Nal Scanning Campaign are Indicated.	41
Figure 24. Map of Positions Scanned in the South Basin Unload Pool During the Basin Scanning Campaign. Inferred Fissile Mass Values >0.5 grams Identified During CZT Scanning Campaign are Indicated.	43
Figure 25. L_D versus Inferred Fissile Mass (>0.5 gm) for the Transfer Channel as Determined During the Nal Scanning Campaign	45
Figure 26. Map of Positions Scanned in the Transfer Channel During the Basin Scanning Campaign. Inferred Fissile Mass Values >0.5 grams Identified During Nal Scanning Campaign are Indicated. Inferred Fissile Mass Values >5 grams are Indicated Separately.	46
Figure 27. L_D versus Inferred Fissile Mass (>0.5 gm) for the Channel to Loading Pits and Pits as Determined During the Nal Scanning Campaign	48
Figure 28. Map of Positions Scanned in the Channel to Loading Pits and Loading Pits During the Basin Scanning Campaign. Inferred Fissile Mass Values >0.5 grams Identified During Nal Scanning Campaign are Indicated.	49
Figure 29. Map of Positions Scanned in the Transfer Channel During the Basin Scanning Campaign. Inferred Fissile Mass Value >0.5 grams Identified During Nal Scanning Campaign is Indicated. 51	
Figure 30. Map of Positions Scanned in the North Loading Pit During the Basin Scanning Campaign. Inferred Fissile Mass Values >0.5 grams Identified During Nal Scanning Campaign are Indicated.	52
Figure 31. Map of Positions Scanned in the South Loading Pit During the Basin Scanning Campaign. Inferred Fissile Mass Value >0.5 grams Identified During Nal Scanning Campaign is Indicated. 53	
Figure 32. Map of Positions Scanned in the Transfer Channel Decking Area During the Basin Scanning Campaign. Inferred Fissile Mass Value >0.5 grams Identified During Nal Scanning Campaign is Indicated.	54

ENGINEERING DESIGN FILE

01/30/2004

Page vi of 123

LIST OF TABLES

Table 1. Summary of Scanning Campaign for Main Basins, 6880 Total Scans were Performed.....	14
Table 2. Summary of Scanning Campaign for Ancillary Areas, 2403 Total Scans were Performed. ..	15
Table 3. Calibration Information for the Efficiency Calibration Sources Used. Source Activity is Corrected to the Date of the Calibration Procedure.	18
Table 4. The Final Corrected Scanning Efficiencies for the Six CZT Detectors	22
Table 5. Distribution of Inferred Fissile Mass in the North Basin as Determined by the NaI Scanning Campaign	25
Table 6. The Twenty Largest Inferred Fissile Mass Values and Locations in the North Basin as Determined During the NaI Scanning Campaign.	27
Table 7. The Positions Scanned in the North Basin During the CZT Scanning Campaign. No Fissile Mass was Inferred.	28
Table 8. Distribution of Inferred Fissile Mass in the Middle Basin as Determined by the NaI Scanning Campaign	28
Table 9. The Twenty Largest Inferred Fissile Mass Values and Locations in the Middle Basin as Determined During the NaI Scanning Campaign.	30
Table 10. The Position Scanned in the Middle Basin During the CZT Scanning Campaign Resulting in Inferred Fissile Mass Value >0.5 grams and Measurement Uncertainty as well as the Associated L_C and L_D values.	31
Table 11. Distribution of Inferred Fissile Mass in the South Basin as Determined by the NaI Scanning Campaign	32
Table 12. The Twenty Largest Inferred Fissile Mass Values and Locations in the South Basin as Determined During the NaI Scanning Campaign.	34
Table 13. The Positions Scanned in the South Basin During the CZT Scanning Campaign Resulting in Inferred Fissile Mass Values >0.5 grams and Measurement Uncertainties as well as the Associated L_C and L_D values.....	36
Table 14. Distribution of Inferred Fissile Mass in the South Basin Unload Pool as Determined by the NaI Scanning Campaign	38
Table 15. The Twenty Largest Inferred Fissile Mass Values and Locations in the South Basin Unload Pool as Determined During the NaI Scanning Campaign.	40
Table 16. The Positions Scanned in the South Basin Unload Pool During the CZT Scanning Campaign Resulting in Inferred Fissile Mass Values >0.5 grams and Measurement Uncertainties as well as the Associated L_C and L_D values.	42
Table 17. Distribution of Inferred Fissile Mass in the Transfer Channel as Determined by the NaI Scanning Campaign	44
Table 18. The Twenty Largest Inferred Fissile Mass Values and Locations in the Transfer Channel as Determined During the NaI Scanning Campaign.	47
Table 19. Distribution of Inferred Fissile Mass in the Channel to Loading Pits and Loading Pits as Determined by the NaI Scanning Campaign.....	48
Table 20. Inferred Fissile Mass Values and Locations in the Channel to Loading Pits and Loading Pits as Determined During the NaI Scanning Campaign.	49
Table 21. The Position Scanned in the Channel to Loading Pits and Loading Pits During the CZT Scanning Campaign Resulting in Inferred Fissile Mass Values >0.5 grams and Measurement Uncertainties as well as the Associated L_C and L_D values.	50

ENGINEERING DESIGN FILE

01/30/2004

Page vii of 123

Table 22. The Positions Scanned in the North Loading Pit During he CZT Scanning Campaign Resulting in Inferred Fissile Mass Values >0.5 grams and Measurement Uncertainties as well as Associated L _C and L _D values.....	52
Table 23. The Position Scanned in the South Loading Pit During the CZT Scanning Campaign Resltng in Inferred Fissile Mass Value >0.5 grams and Measurement Uncertainty as well as Associated L _C and L _D values.....	53
Table 24. The Position Scanned in the Transfer Channel Decking Area During the CZT Scanning Campaign Resulting in Inferred Fissile Mass Value >0.5 grams and Measurement Uncertainty as well as Associated L _C and L _D values.....	54
Table 25. Summary of the Total Fissile Mass Inferred in Each Area Scanned During the Nal Scanning Campaign. Totals and Measurement Uncertainties are Computed for All of CPP-603.....	55
Table 26. Summary of the Total Fissile Mass Inferred in Each Area Scanned During the CZT Scanning Campaign. Totals and Measurement Uncertainties are Computed for All of CPP-603.	56
Table 27. A Complete Tabulation of Fissile Mass Values Inferred During the Nal Scanning Campaign in the North Basin. Locations, Measurement Uncertainties and L _C and L _D Values are Also Listed.	58
Table 28. A Complete Tabulation of Fissile Mass Values Inferred During the Nal Scanning Campaign in the Middle Basin. Locations, Measurement Uncertainties and L _C and L _D Values are Also Listed.	81
Table 29. A Complete Tabulation of Fissile Mass Values Inferred During the Nal Scanning Campaign in the South Basin. Locations, Measurement Uncertainties and L _C and L _D Values are Also Listed.	107
Table 30. A Complete Tabulation of Fissile Mass Values Inferred During the Nal Scanning Campaign in the South Basin Unload Pool. Locations, Measurement Uncertainties and L _C and L _D Values are Also Listed.	110
Table 31. A Complete Tabulation of Fissile Mass Values Inferred During the Nal Scanning Campaign in the Transfer Channel. Locations, Measurement Uncertainties and L _C and L _D Values are Also Listed.	111

ENGINEERING DESIGN FILE

01/30/2004

Page 1 of 123

1 INTRODUCTION

The purpose of the CPP-603 Basin Scanning Systems (BSS) was to measure accumulations of ≥ 0.5 grams of fissile material that might be present as irradiated pellets, rods, plates or debris in the basins in support of future Deactivation, Decontamination & Decommissioning (DD&D) activities. This EDF presents the results of basin scanning using Sodium-Iodide (NaI) detectors for the primary measurements and Cadmium-Zinc-Telluride (CZT) detector(s) to measure any 'hot spots' (defined below) identified during NaI measurements.

1.1 Areas Scanned

The CPP-603 basins consist of 3 main basins and several ancillary and connecting basins, pools, pits and channels.

The principal storage basins are:

1. North Basin
2. Middle Basin
3. South Basin

In addition

4. South Basin unload pool
Adjacent to and connecting to South Basin.
5. Transfer Channel
Channel connecting the North, Middle and South basins.
6. Loading Pits
Short channel leading off of the Transfer Channel to two connecting loading pits.
7. Transfer Channel Decking
An inaccessible region at the far southern end of the Transfer Channel near the UV lights beneath aluminum floor decking.

1.2 Scanning Campaign

The Scanning campaign consisted of two main parts:

1. Scanning of locations 1 through 6 above with NaI detector(s) to characterize the distribution of fissile material in the form of irradiated pellets, rods, plates or debris.
2. Scanning of all 'hot spots' with CZT detector(s). The 'hot spots' were identified during step 1 above and were defined as locations with activity sufficient to induce at least 75% of signal processing deadtime in the data acquisition system. The CZT detector has a lower efficiency and better resolution than the NaI detector and is more suited to measurements in high activity fields.

This report presents results obtained in items 1 and 2 above.

1.3 Scanning Equipment

Scanning was accomplished by placing NaI or CZT detector(s), as appropriate, in scanning assemblies holding either one or three detectors simultaneously. The three detector 'triple pack' assembly was primarily used as it covered more scanning area per scan position, the 'single pack' single detector assembly was used where access was problematic due to scan location or crane access issues. Each signal from a given detector in

ENGINEERING DESIGN FILE

01/30/2004

Page 2 of 123

use during a scan was transmitted via cabling to an [ORTEC 572 amplifier](#) and the amplified signal was then transmitted to a [TRUMP ADC](#) card within a PC computer. The acquired data was processed within ORTEC Scintivision software and saved to the appropriate spectral storage file for each scan location for future data analysis.

1.4 Data Analysis

The data was analyzed in two parts:

1. The NaI data was analyzed using ORTEC Scintivision to determine the ^{137}Cs activity from the 661 keV photopeak. This is indicative of activity due to fissile material in the form of pellets, rods, plates or debris in scan locations.
2. The CZT data was analyzed using standard step-background subtraction methods in MS Excel to determine the ^{137}Cs activity from the 661 keV photopeak for 'hot spots' where the activity rendered NaI scanning of a particular location inconclusive.

The detectors underwent SO testing and efficiency calibration Error! Bookmark not defined.,Error! Bookmark not defined. prior to use. Detector energy calibration and an efficiency calibration check were performed at the beginning and end of each shift.

The objective of this EDF is to present results of both the initial NaI scans and the CZT hot spot scans to identify and characterize fissile material locations in the basin areas in the form of irradiated pellets, rods, plates or debris.

2 AREAS SCANNED

The floor plan of CPP-603 showing basin locations is shown in Figure 1.Following are Figure 2-Figure 11, maps of each basin, transfer channel, or ancillary loading or unloading pits or pools showing the positions scanned using NaI detector(s) as well as the 'hot spots' scanned using CZT detector(s).

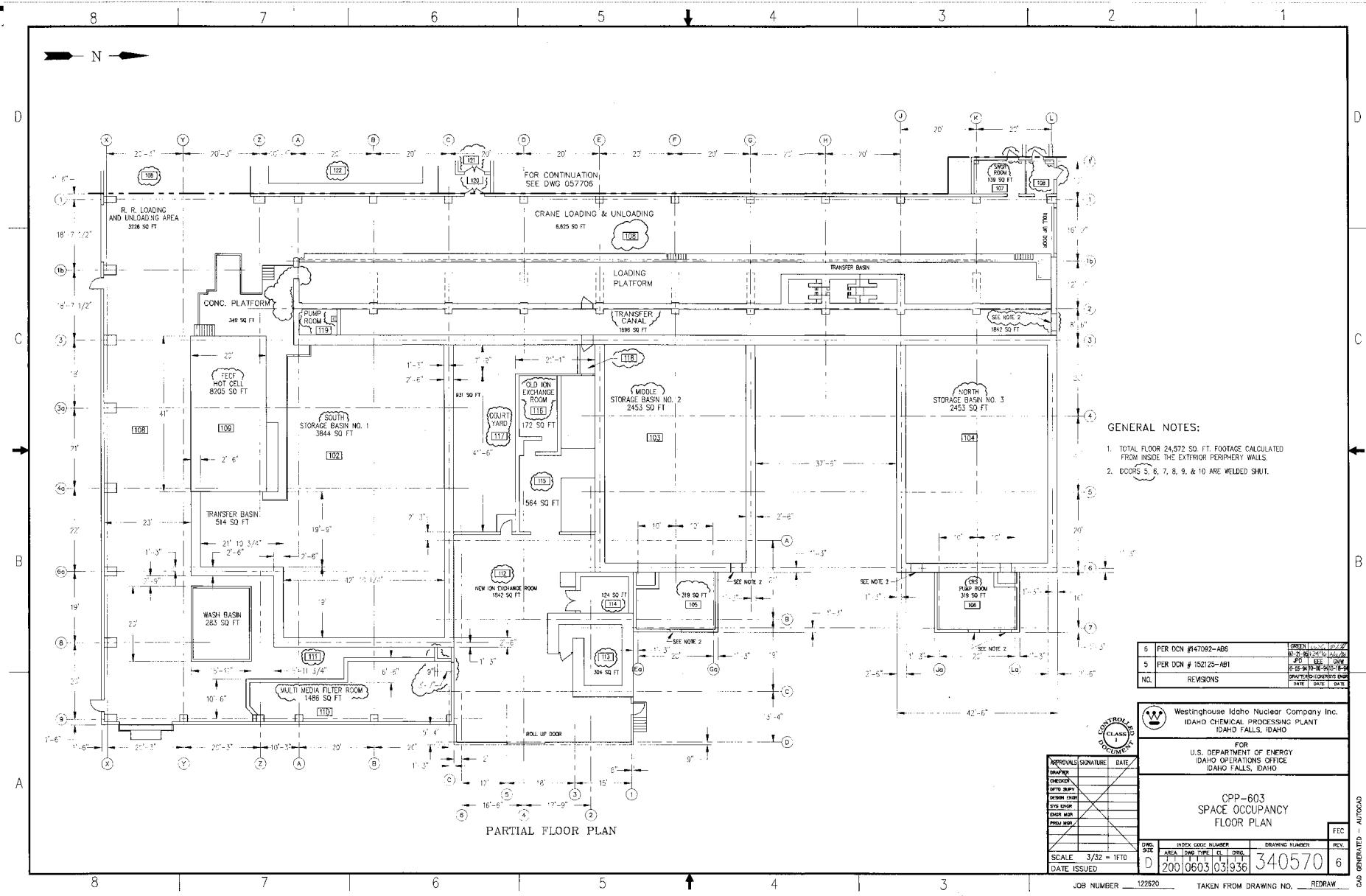


Figure 1. CPP-603 Building Floor Plan

ENGINEERING DESIGN FILE

01/30/2004

Page 4 of 123

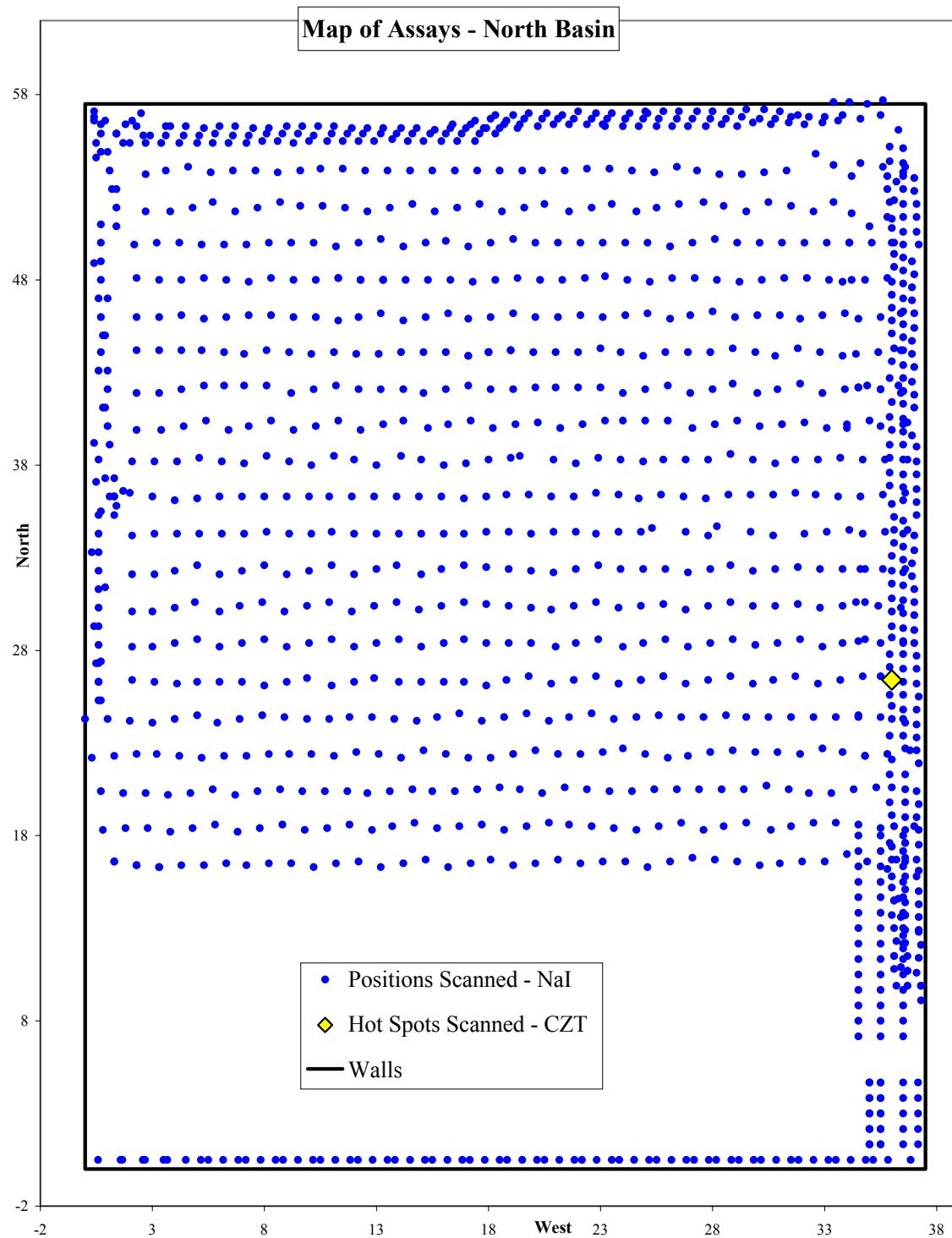


Figure 2. Map of Positions Scanned in the North Basin During the Basin Scanning Campaign

ENGINEERING DESIGN FILE

01/30/2004

Page 5 of 123

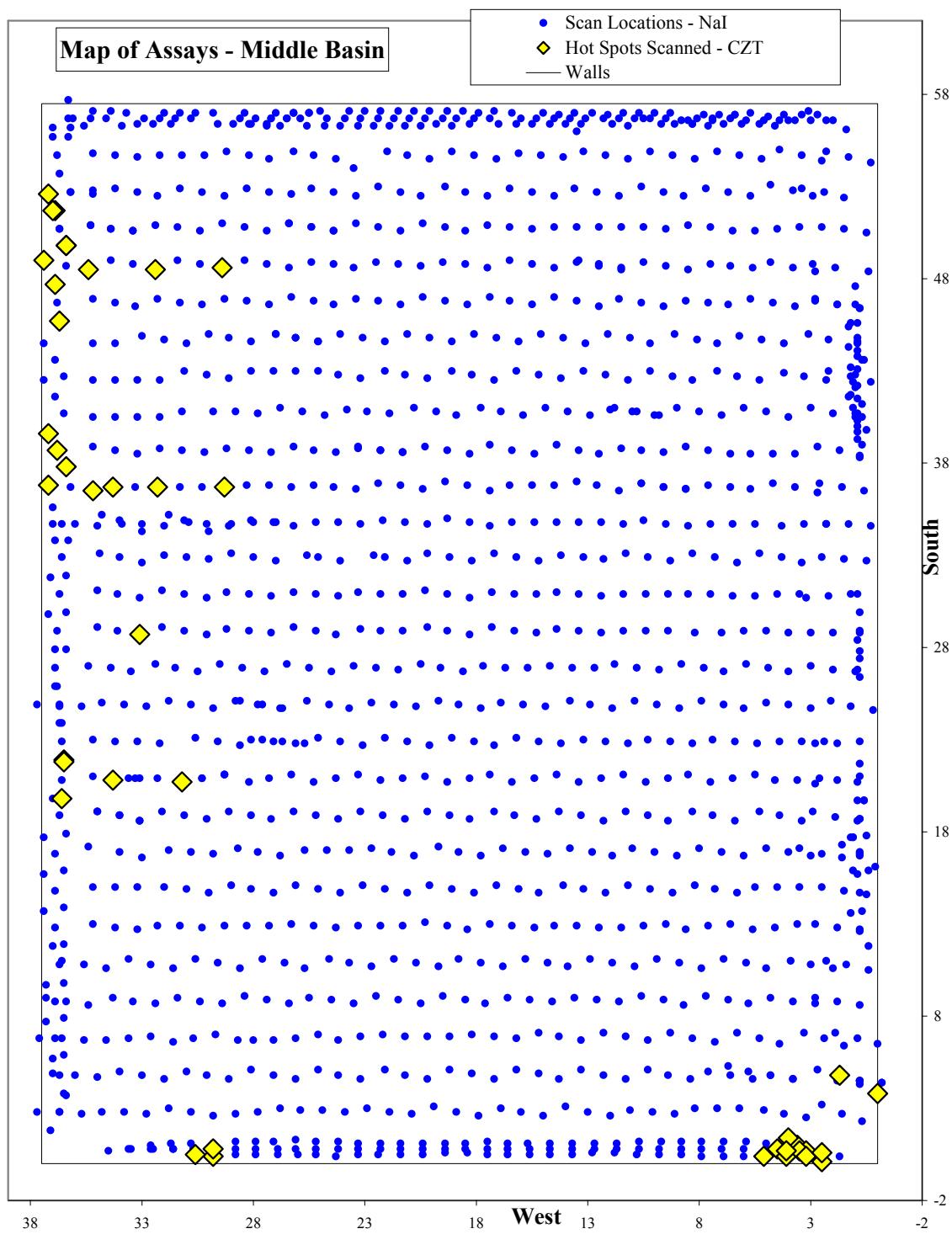


Figure 3. Map of Positions Scanned in the Middle Basin During the Basin Scanning Campaign

ENGINEERING DESIGN FILE

01/30/2004

Page 6 of 123

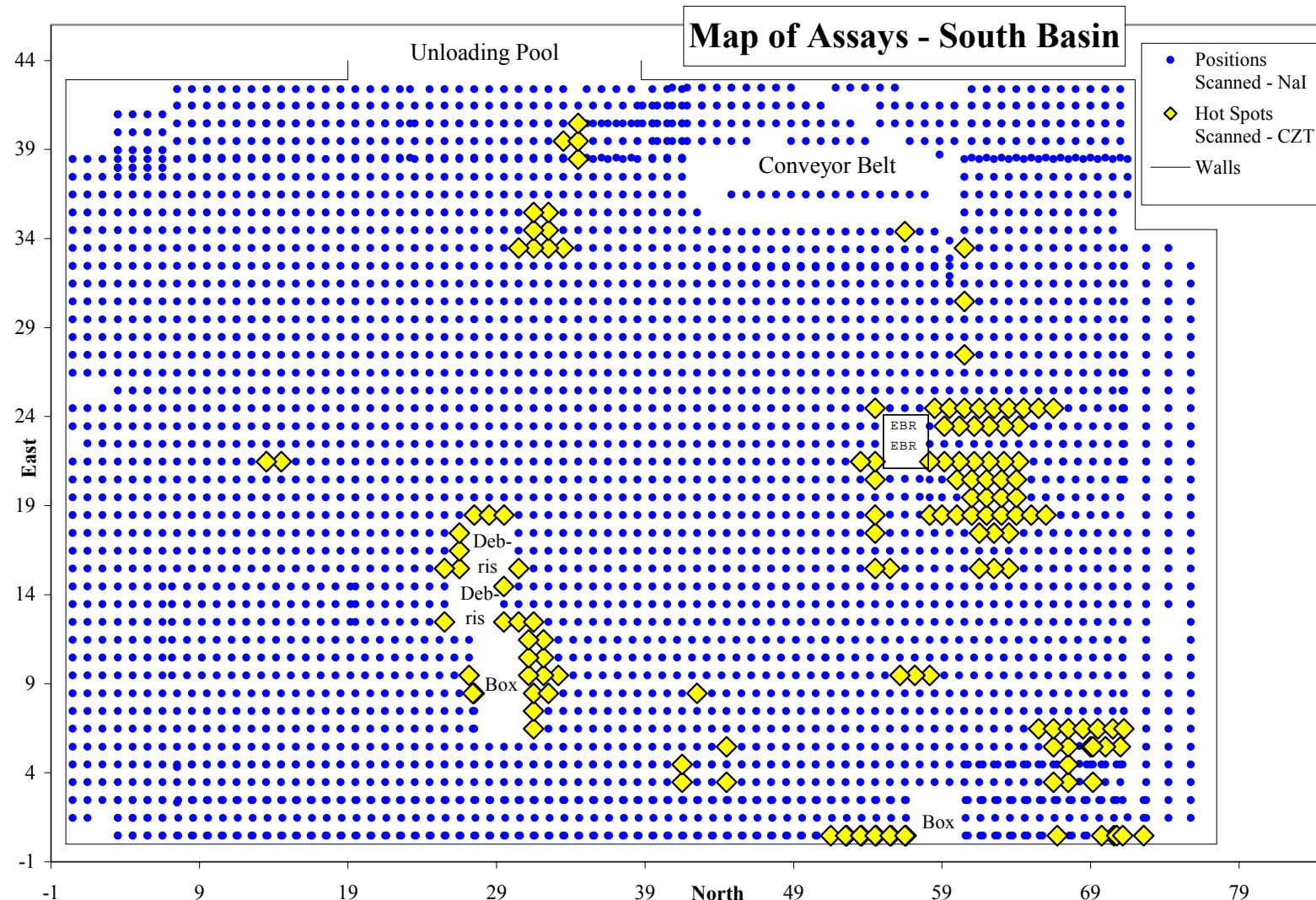


Figure 4. Map of Positions Scanned in the South Basin During the Basin Scanning Campaign. Gaps in coverage are due to access limitations from boxes, debris, piping, conveyor framework and other obstructions.

ENGINEERING DESIGN FILE

01/30/2004

Page 7 of 123

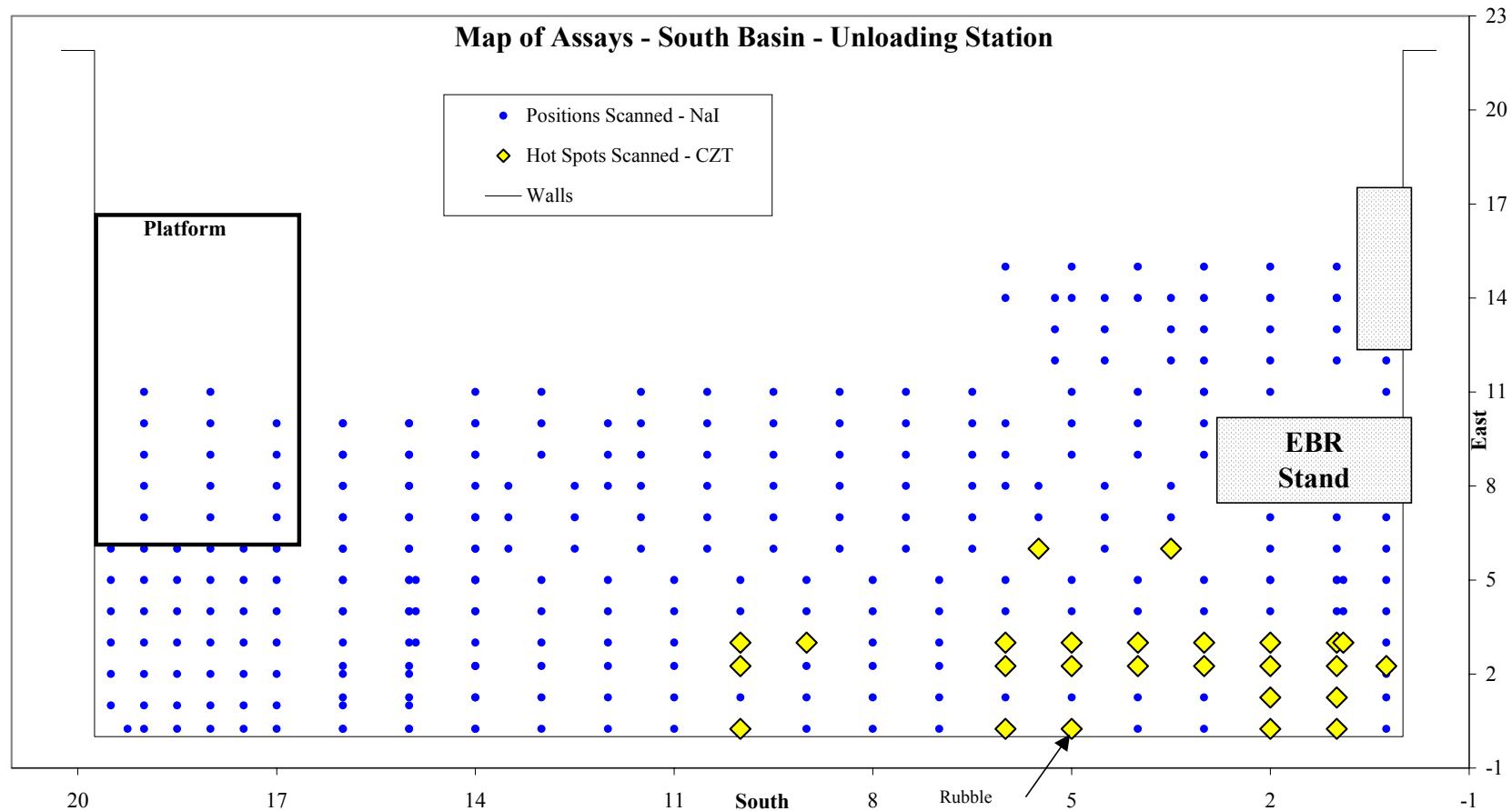


Figure 5. Map of Positions Scanned in the South Basin Unload Pool During the Basin Scanning Campaign. Gaps in coverage are due to crane access limitations caused by overhead obstructions, stands, boxes or platforms obstructing access.

ENGINEERING DESIGN FILE

01/30/2004

Page 8 of 123

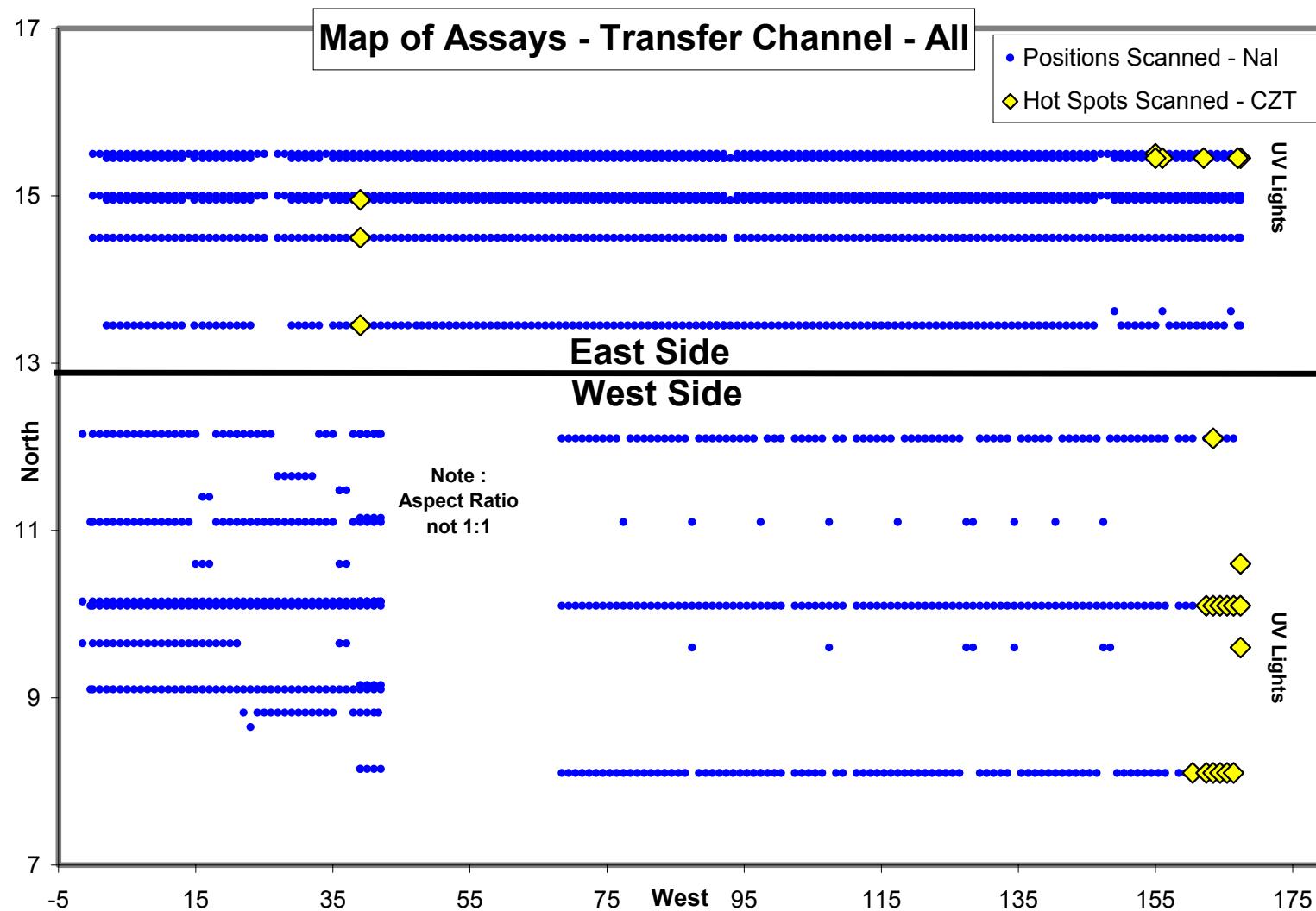


Figure 6. Map of Positions Scanned in the Transfer Channel During the Basin Scanning Campaign. Non-uniformity of coverage is due to underwater obstructions. (mainly support pillars)

ENGINEERING DESIGN FILE

01/30/2004

Page 9 of 123

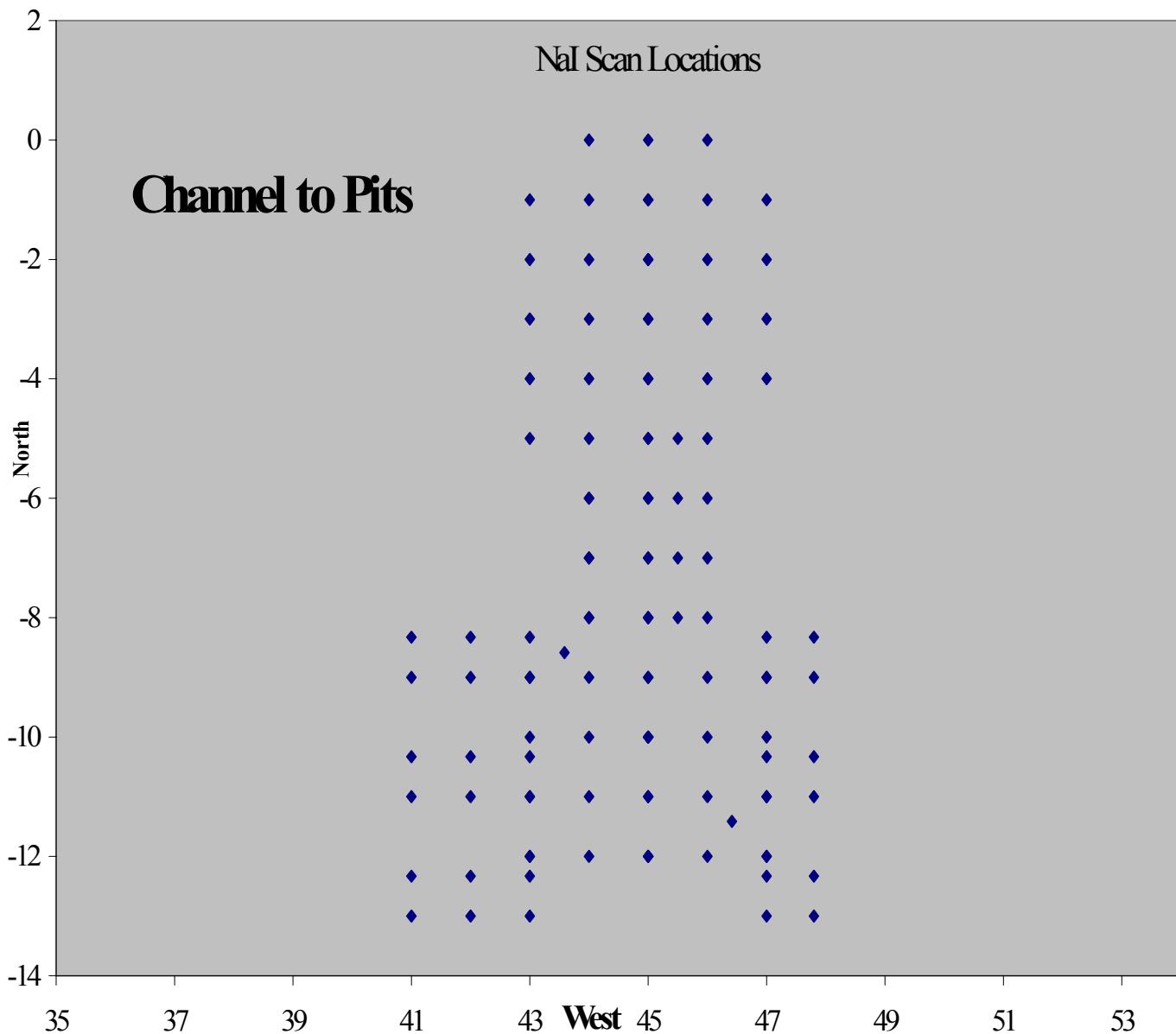


Figure 7. Map of Positions Scanned in the Channel to the Loading Pits and the Loading Pits During the Nal Basin Scanning Campaign. Non-uniformity of coverage is due to underwater obstructions. (mainly support pillars and decking)

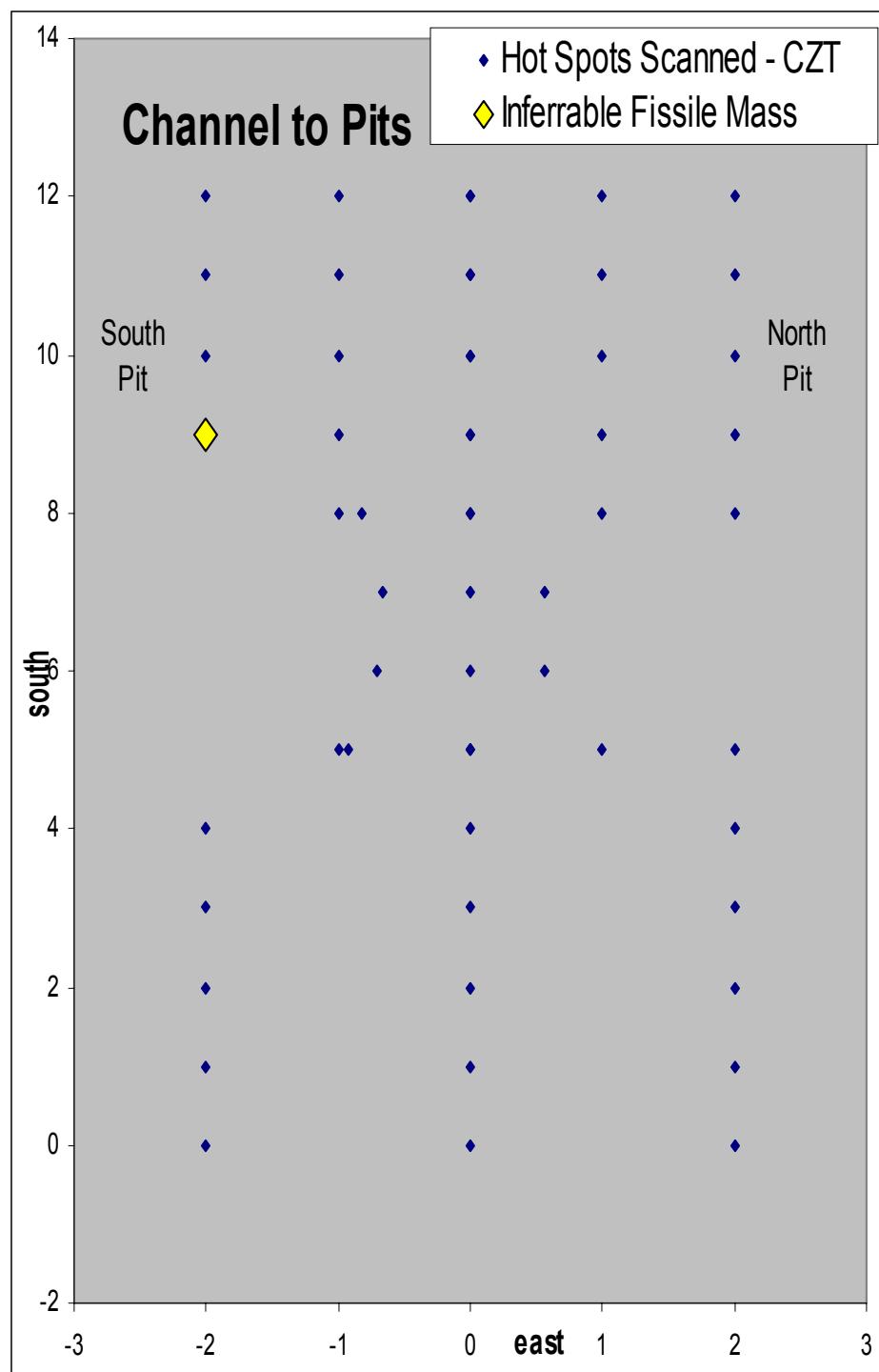


Figure 8. Map of Positions Scanned in the Channel to the Loading Pits During the CZT Basin Scanning Campaign. Non-uniformity of coverage is due to underwater obstructions. (mainly support pillars and decking)

ENGINEERING DESIGN FILE

01/30/2004

Page 11 of 123

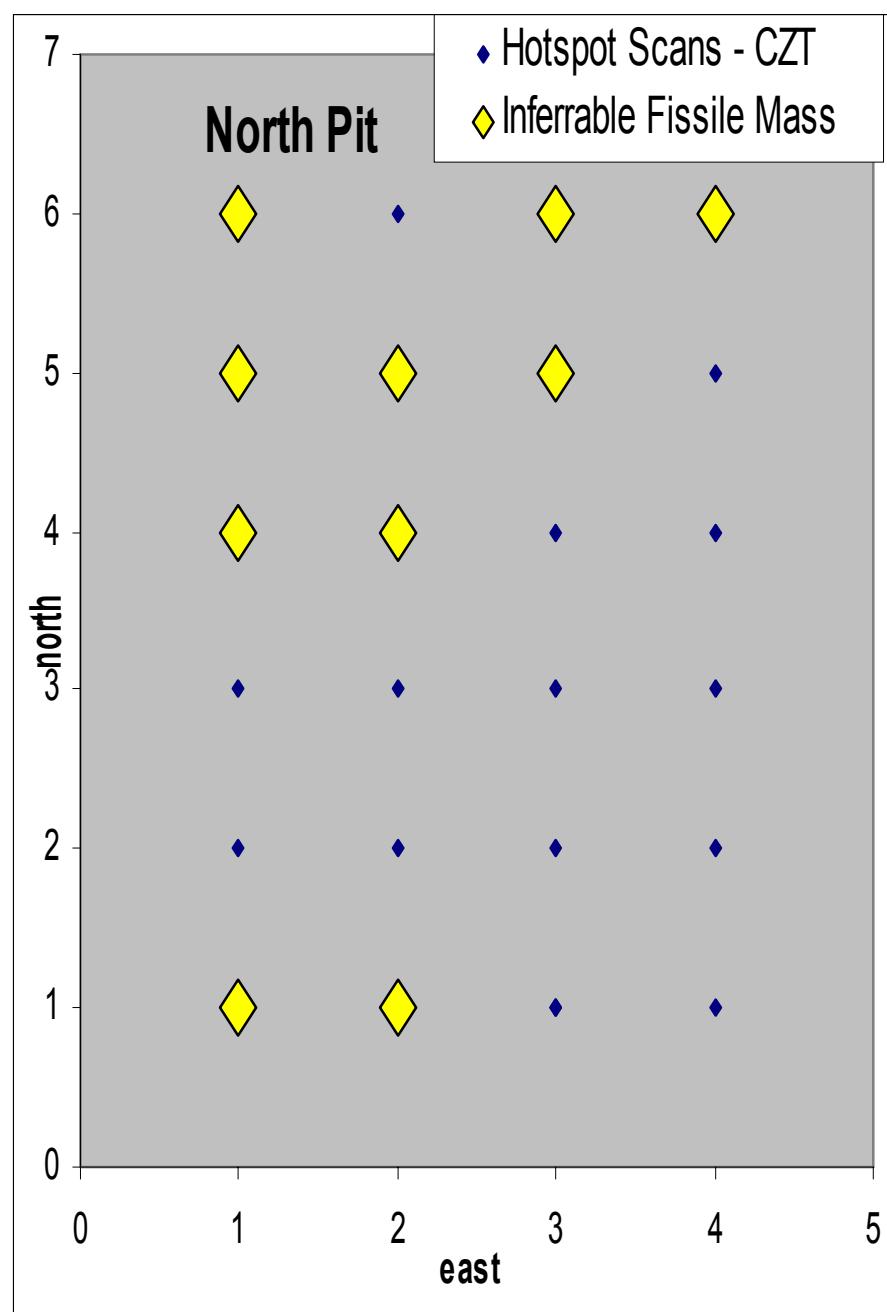


Figure 9. Map of Positions Scanned in the North Loading Pit During the CZT Basin Scanning Campaign.

ENGINEERING DESIGN FILE

01/30/2004

Page 12 of 123

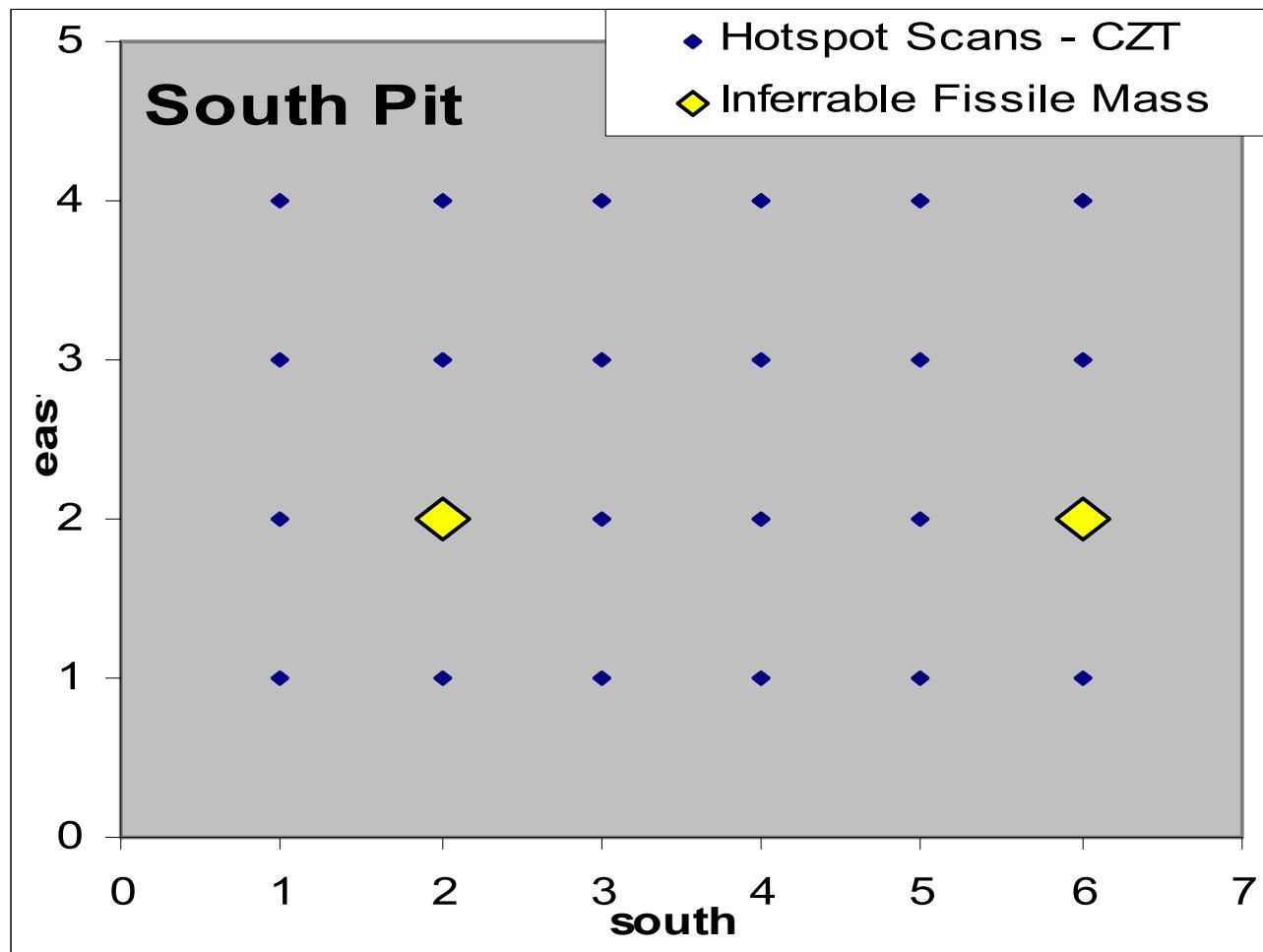


Figure 10. Map of Positions Scanned in the South Loading Pit During the CZT Basin Scanning Campaign.

ENGINEERING DESIGN FILE

01/30/2004

Page 13 of 123

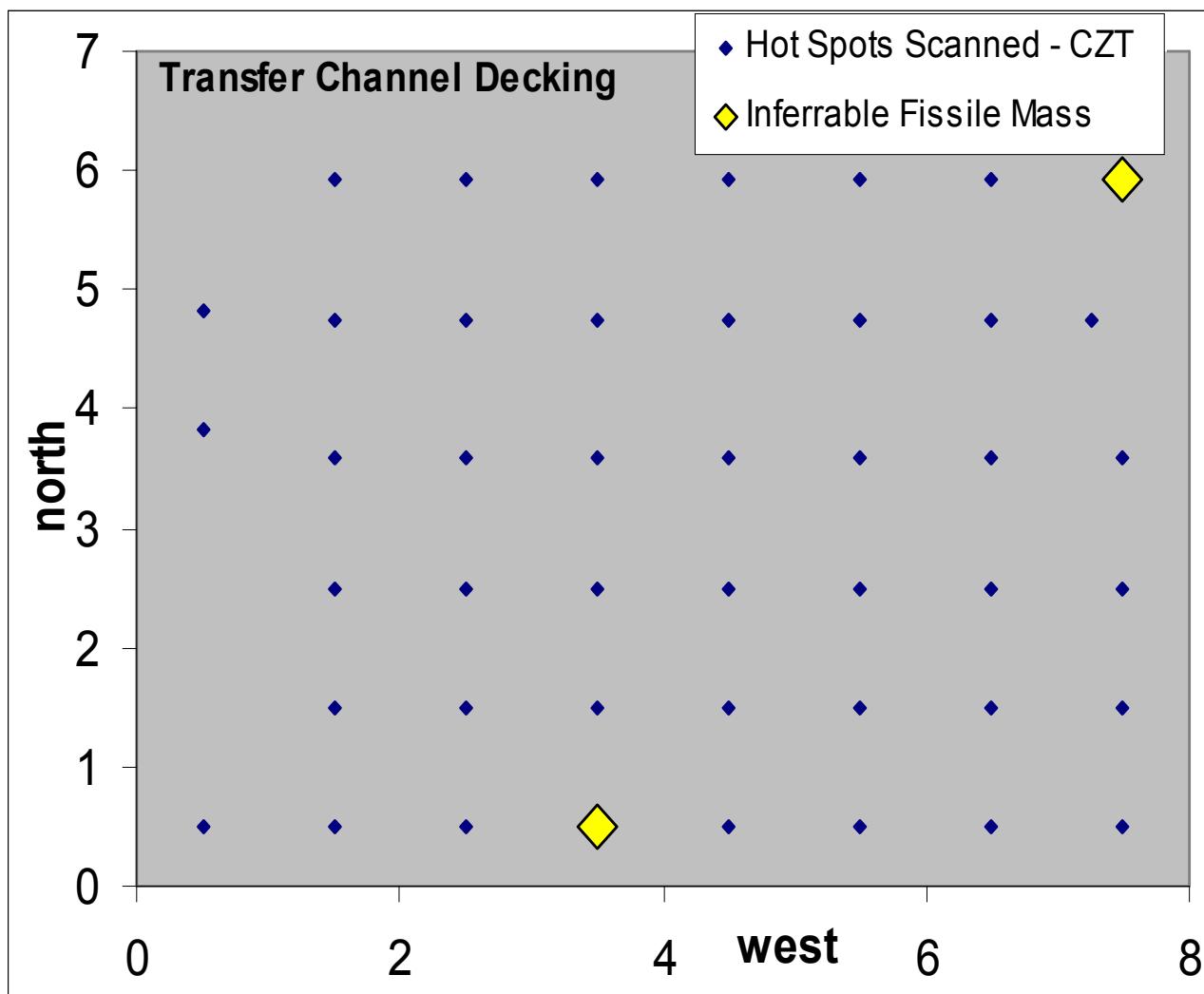


Figure 11. Map of Positions Scanned in the Transfer Channel Decking Area During the CZT Basin Scanning Campaign.

ENGINEERING DESIGN FILE

01/30/2004

Page 14 of 123

3 SCANNING CAMPAIGN

The NaI and CZT scanning campaigns were executed in series. The scans were performed as in Table 1 and Table 2. A total of **9283** individual scans were performed during the entire Basin Scanning campaign.

Table 1. Summary of Scanning Campaign for Main Basins, 6880 Total Scans were Performed.

Area Scanned	Date Scanned		Scans Completed	Total Scans in Specified Area NaI or CZT
	NaI	CZT		
North Basin	8-29-01		15	
	8-30-01		84	
	8-31-01		390	
	9-4-01		321	
	9-5-01		414	
	9-13-01		159	
	5-8-02		23	1406
		12-16-02	3	3
Middle Basin	9-10-01		57	
	9-11-01		648	
	9-12-01		630	
	9-13-01		243	
	5-9-02		45	1623
		12-16-02	30	
		12-17-02	42	72
South Basin	9-19-01		345	
	9-20-01		581	
	9-21-01		1068	
	9-22-01		1170	
	9-23-01		108	
	9-24-01		1	
	9-25-01		113	
	1-30-02		27	
	1-31-02		75	
	2-4-02		3	
	5-6-02		15	3506
		7-11-02	18	
		7-12-02	63	
		8-20-02	30	
		8-21-02	111	
		8-22-02	48	270

ENGINEERING DESIGN FILE

01/30/2004

Page 15 of 123

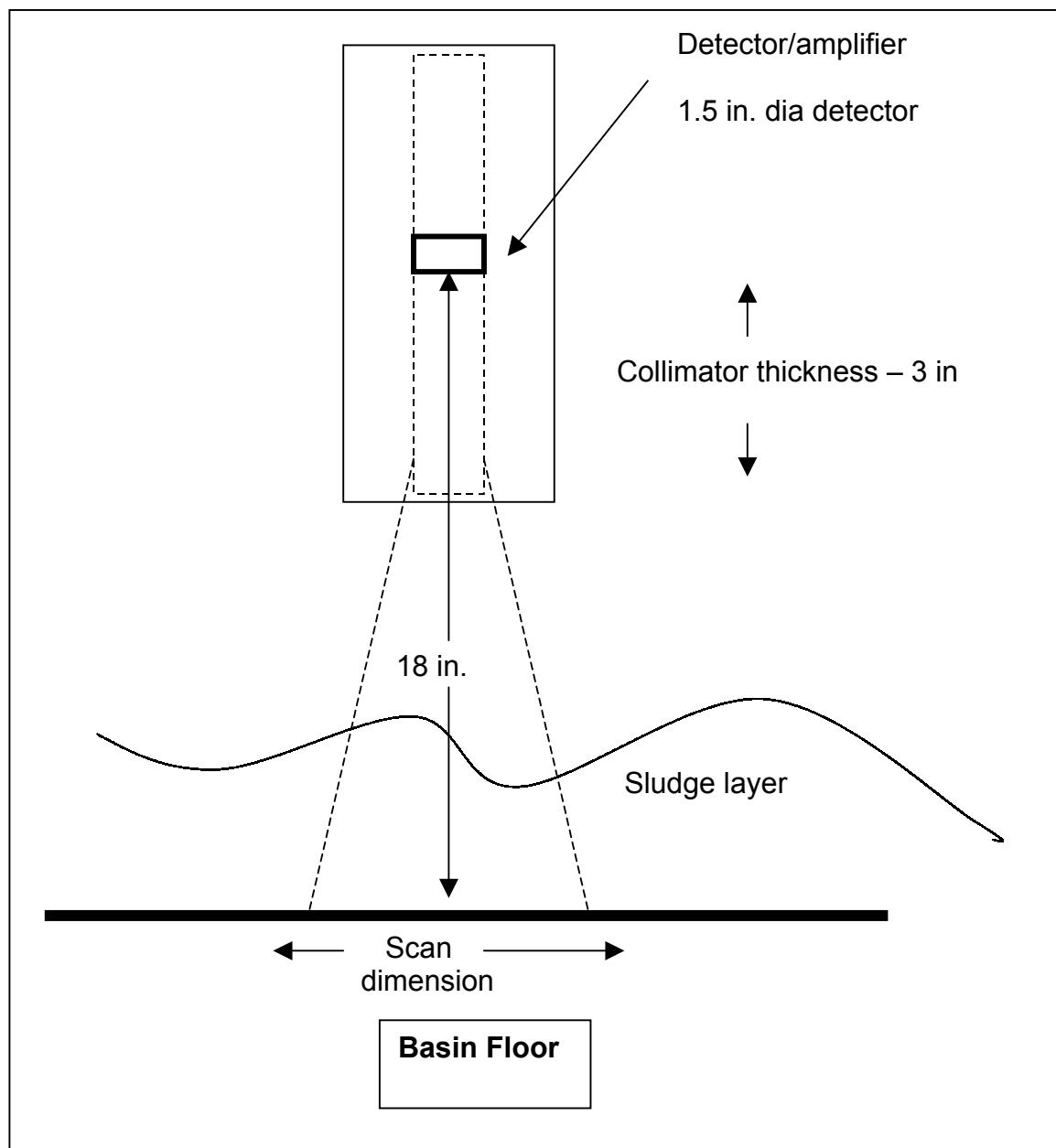
Table 2. Summary of Scanning Campaign for Ancillary Areas, 2403 Total Scans were Performed.

Area Scanned	Date Scanned		Scans Completed	Total Scans in Specified Area NaI or CZT
	NaI	CZT		
South Basin Unload Pool	9-24-01		233	
	1-29-02		68	
	1-30-02		28	329
		12-18-02	15	
		12-19-02	39	54
Transfer Channel	9-13-01		234	
	9-14-01		501	
	9-15-01		195	
	9-17-01		303	
	9-18-01		123	
	9-25-01		312	1668
		12-04-02	18	
		12-05-02	57	
		12-12-02	12	87
Channel to Pits	9-14-01		69	
	9-15-01		45	114
		12-12-02	42	
		12-16-02	15	57
North Loading Pit		10-29-02	22	
		11-13-02	3	25
South Loading Pit		11-14-02	24	24
Transfer Channel Decking		12-23-02	21	
		12-24-02	24	45

4 SCANNING EQUIPMENT

The equipment used in Basin Scanning is described in detail in references **Error! Bookmark not defined.-Error! Bookmark not defined.**. The basic configuration is shown in Figure 12.

Figure 12. Basic Basin Scanning Configuration. Specific details may vary depending upon the area scanned, the detector used, whether the single or triple pack was used, or the ease of access for a specific location.



ENGINEERING DESIGN FILE

01/30/2004

Page 17 of 123

The field of view calculations are included in EDF-1986 and indicate a footprint of 12.0"x12.0". Actual measurements⁴ indicate a more realistic field of view of 13.5", with greatly decreasing efficiency beyond 12". Due to crane access problems, a side-looking collimator, similar to that in Figure 12 was used to scan the westmost region of the South Basin. This collimator assembly is also described in references 1-5.

5 SO TESTING

The SO testing of the system was performed at several stages and may be found in references **Error! Bookmark not defined.-Error! Bookmark not defined.** including SO tests of the Rack Scanning System, the NaI Basin Scanning system and the CZT Basin Scanning System.

6 DATA ANALYSIS METHODOLOGY

6.1 CZT Detector Efficiency Calibration

Five room temperature [Cadmium-Zinc-Telluride](#) (CZT) detectors were selected for use in the 'hot spot' basin scanning campaign. They were provided by eV Products and are designated by serial numbers: A407, A529, A545, A546, A547. Each detector is manufactured in a 12 mm diameter 89 mm long cylindrical housing with the active detector material measuring 5 mm x 5 mm x 5 mm located at the business end of the cylindrical housing. Detectors A529, A546 and A547 were used in the triple-pack assembly while detector A407 was used in the single-pack assembly. Detector A545 was kept in reserve and not used.

The efficiency-calibration procedure is detailed in EDF-1986^{Error! Bookmark not defined.}. The calibration involved using check sources with photopeaks at energies relevant to the task at hand (661 keV and relevant ¹⁵²Eu photopeak energies) while including photopeaks of energies covering the entire relevant energy range (0-1500 keV). Since the 661.66 keV ¹³⁷Cs (¹³⁷Cs β⁻ to ^{137m}Ba IT 661.66 keV to GS) is the indicator for fissile material content, a ¹³⁷Cs calibration source was used. A ¹⁵²Eu source was also used for its abundance of photopeaks between 121.78 keV and 1408.01 keV. While the 661.66 keV ¹³⁷Cs photopeak is the only photopeak whose efficiency-calibration is necessary here, for thoroughness efficiency-calibration was obtained at the ¹⁵²Eu photopeaks energies as well. The two sources used also allow an energy calibration to be performed on each spectrum individually. The two sources selected were obtained from AET^a and are sealed in acrylic discs of 1-inch diameter and 1/8 inch thickness with activity confined to a 5 mm diameter planar region. Certification^b of the source strengths was provided at fabrication and the activities were decay corrected to 06/01/01, the approximate date of the calibration procedure. Details of the sources, their original activities and their corrected activities are shown in Table 3:

Table 3. Calibration Information for the Efficiency Calibration Sources Used. Source Activity is Corrected to the Date of the Calibration Procedure.

Source ^b	¹⁵² Eu	¹³⁷ Cs	unit
ID	DN676	DN675	
half-life	13.542	30.17	yrs
activity^c	424	426	kBq
	424000	426000	Bq
source certification date^c	10/01/93	10/01/93	
acquisition date	06/01/01	06/01/01	
decay time	0.566	0.254	half-lives
decay corrected activity	286386	357206	Bq
fraction remaining	0.68	0.84	

^a Formerly Amersham

^b Certification documentation stored in IF-638, Obtainable by contacting the author

^c Obtained from Amersham certification sheets

ENGINEERING DESIGN FILE

01/30/2004

Page 19 of 123

Data was then acquired for a given detector with the two described sources placed at contact, 3 inches, and 6 inches from the detector face. Collection live times were typically >25000 seconds (~7 hr) to assure adequate statistics for analysis. The photopeak area was determined after subtracting a step-background. The efficiency of the detector for a given photopeak was obtained as

$$\text{Efficiency (c}/\gamma) = \frac{\text{photopeak_area (counts)}}{\text{live time (sec)}} \frac{1}{\text{branch}} \frac{1}{\text{decay corrected activity (c/s)}}$$

Errors were propagated for this formula to obtain realistic errors.

This analysis was performed within Excel and results are shown graphically in Figure 13 and Figure 14 for each of the five detectors :

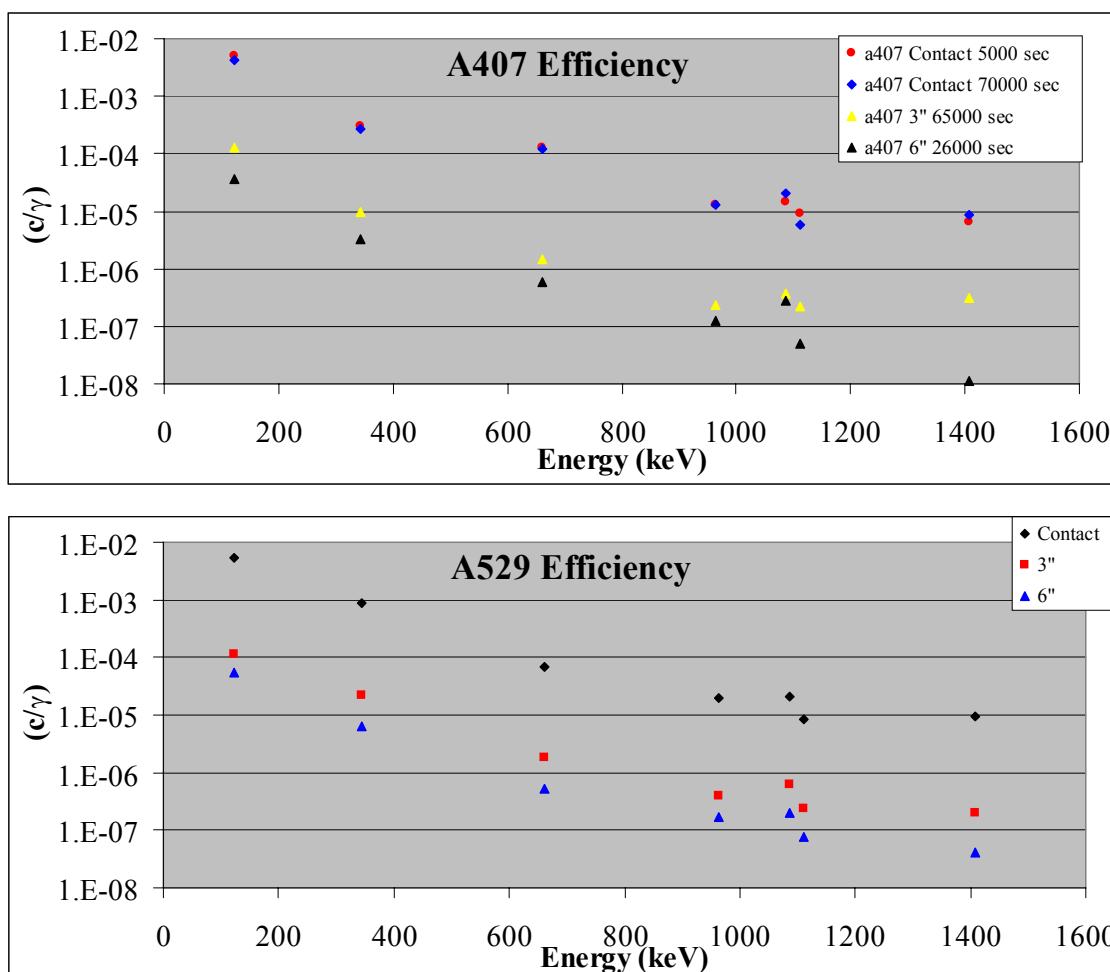
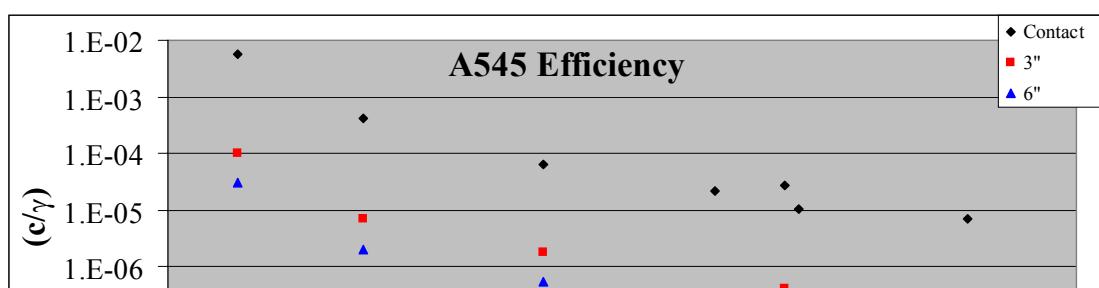


Figure 13. The Measured Efficiency in Air of CZT Detectors A407 and A529.



ENGINEERING DESIGN FILE

01/30/2004

Page 20 of 123

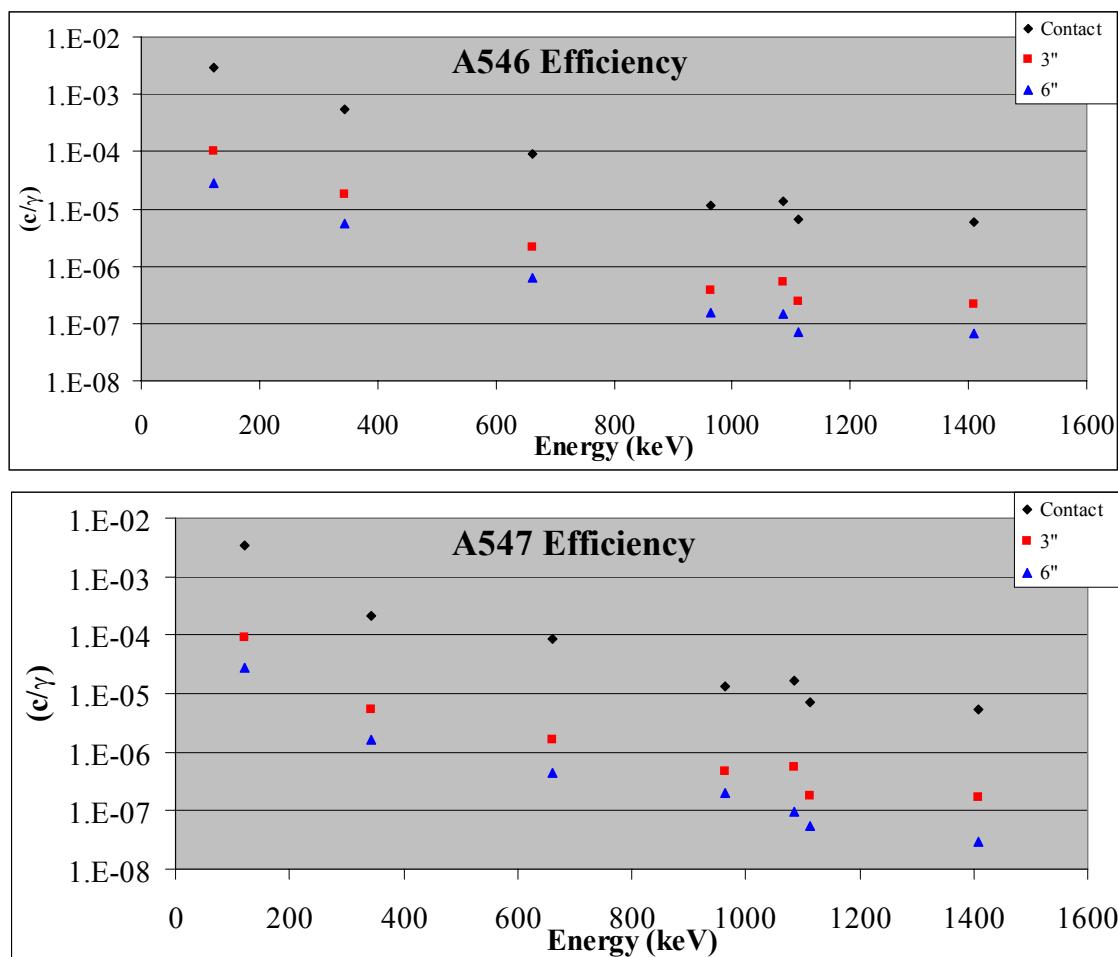
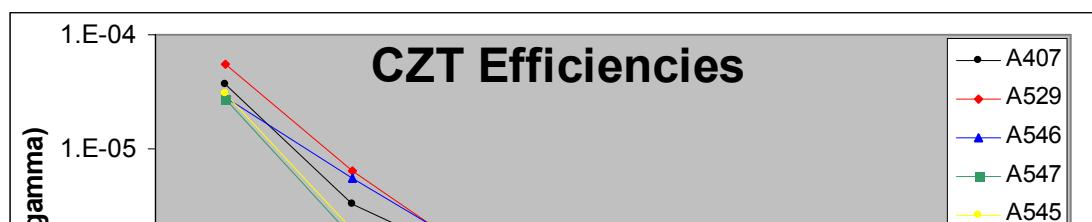


Figure 14. The Measured Efficiency in Air of CZT Detectors A545, A546 and A547.

These results are graphically summarized for the 6 inch source to detector distance in Figure 15. It is noted that little difference is seen between different detectors in the region of interest at 661.66 keV. The variability of the detector efficiencies of the 1112 keV ^{137}Cs photopeak is due to the close proximity of the 1089 keV ^{152}Eu photopeak.



ENGINEERING DESIGN FILE

01/30/2004

Page 21 of 123

Figure 15. The Measured Efficiency in Air of All Six CZT Detectors measured 6" from the Source

The above results were then input to Microshield^d to model the attenuation of ^{137}Cs activity within the detector mounting assembly as well as attenuation in the intervening water between the active CZT detector volume and the floor of the basin, where the particulate fissile ^{235}U is presumed to be. The modeling was performed for several cases of detector to basin floor distances varying between 7" and 22". Details of this modeling are reported in EDF-1986 Rev.1^{Error! Bookmark not defined.}. It was determined, based on the results as presented in EDF-1986, as well as an independent analysis⁷, that scanning at a distance of 20" for 500 seconds is adequate to characterize fissile ^{235}U content below 0.5 grams (below 24 mCi 661 keV ^{137}Cs activity). Actual measured detection limits will be indicated in the results presented later in this report. It should be noted prior to the complete presentation of results given below that the CZT scanning campaign was able to detect <.50 grams (or 24 mCi of photopeak activity) of fissile ^{235}U at a 95% confidence level.

The resulting efficiencies were calculated in EDF-1986 for detector to basin floor distances of 7.12", 10.12", 13.12", 16.12", and 22". The detector efficiencies for 20" detector to basin floor distance were then derived by fitting the efficiencies for each of the five detectors to an exponential curve and obtaining the values at 20" from the least-squares fitted result.

The resulting detector efficiencies for the 5 CZT detectors for the 661.66 keV ^{137}Cs gamma for a scanning height of 20" are shown in Table 4.

^d Microshield version 5.05, Grove Engineering, Rockville, Maryland

Table 4. The Final Corrected Scanning Efficiencies for the Six CZT Detectors

Detector	Use	Efficiency (c/ γ) (661.67 keV)
A407	Single Pack	5.41e-10
A529	Triple-pack 1	6.84e-10
A545	Spare	6.44e-10
A546	Triple-pack 2	8.05e-10
A547	Triple-pack 3	6.07e-10

6.2 NaI Detector Efficiency Calibration

The efficiency calibration for the NaI detectors used for scanning was performed similarly to the process described in Section 6.1. The procedure and results are outlined in EDF-2845^{Error! Bookmark not defined.}. Efficiencies of the NaI detectors are typically $\sim 10^2$ larger than for CZT detectors.

6.3 Mass/Activity ratio $^{235}\text{U}/^{137}\text{Cs}$

During the design and development of the Basin Scanning System, several EDFs^{1,2,3,4} were developed to describe the methodology for determining the fissile content of partial fuel plates, rods, pellets or particles with inventories of 0.5 g of fissile material or greater. To estimate the fissile material content, it was necessary to define a ratio between a radionuclide likely retained in the fuel particles and ^{235}U pieces (e.g., ^{137}Cs), that could be easily detected and could be differentiated from sludge related radionuclides. To determine the fissile material content it was necessary to define a ratio between the measured fission product and the fissile mass present. The TRIGA fuel ^{137}Cs to fissile material ratio (nominally ^{235}U and small amounts of other fissile constituents) were chosen and approved for two primary reasons. The first is that TRIGA fuel is one of the fuels that was considered likely to have been distributed in the basins as retrievable pieces of fuel material and the second was that this fuel's $^{137}\text{Cs}/^{235}\text{U}$ ratio was near the median value for all of the fuels in the basins. Consequently, it was considered representative of likely fission product to fissile material ratios expected for fuels in the basins. Details of the concentrations of TRIGA fuel elements are detailed in Tomsio^{Error! Bookmark not defined.}.

The ratio of ^{137}Cs activity to fissile ^{235}U mass for TRIGA fuel is quoted in EDF-1986 Table 14.

$$^{137}\text{Cs activity} / ^{235}\text{U mass} = 48 \text{ mCi/gm}$$

6.4 Measurement Uncertainties

6.4.1 Ultrasonic Measurement Uncertainty

The elevation of the floor of the various basins, channels, and pits was generally a slight slope that tended to vary over each of the areas scanned. Consequently, it was decided to use an ultrasonic detector to measure the distance to the floor for each measurement and to record that data automatically in the data file associated with each measurement. The detector to floor distance was measured using a Krautkramer ultrasonic measurement system with which the distance to the floor could be measured to within ± 0.5 inches with sludge present. This

uncertainty is principally due to unevenness of the basin floors. To characterize the associated error in measuring the relevant 661.67 keV ^{137}Cs photopeak flux the attenuation of this gamma-ray was calculated when 0.5 inches of water was added and subtracted to the model in Microshield. The model used is that of the detection geometry including the detector, water and sludge in the model. The calculation indicates that 0.5" of water attenuates the signal by 8%. The activity measurement associated with the uncertainty in detector to floor distance was therefore estimated as $\pm 8\%$.

6.4.2 Efficiency Calibration Uncertainty

The uncertainty normally associated with efficiency calibration is due to uncertainties in photopeak areas used in the calculation described in section 6.1. These uncertainties are typically statistical in nature and are calculated as $\sqrt{\text{photopeak_area}}$. Therefore, sufficient statistics were accumulated so as to minimize this error in the efficiency calibration process. Data were acquired for typically >25000 seconds live time, resulting in the uncertainties listed in EDF 1986 that vary from 1-2%. The more significant uncertainty, however, is that introduced in modeling the sludge, water, and detector casing described in section 6.4.1. The primary source of uncertainty in the modeling procedure is estimating the sludge depth. The sludge throughout the basins, channels, and pits in CPP-603 varies from 0 to 4 inches in depth. To quantify the uncertainty associated with this variable sludge depth, the detection geometry including the detector, water and sludge was modeled in Microshield and the effect of adding or removing 2 inches of sludge calculated (sludge depth is thus expressed as 2 ± 2 inches). The resulting attenuation difference of the 661.67 photopeak due to 2 inches of sludge is 6%. We therefore estimate the activity measurement associated with the uncertainty in detector to floor distance as $\pm 6\%$.

6.4.3 Photopeak Area Uncertainty

Data including both efficiency calibration data and scanning data are analyzed as described in section 6. The NaI data is analyzed within Scintivision, which subtracts a background from each photopeak and then fits a gaussian function to the photopeak, also calculating the associated fitting error which varies approximately as $\pm \sqrt{\text{photopeak_area}}$. For the CZT data, a step background, with step centered on the photopeak centroid, is subtracted from the photopeak region, the result being the photopeak itself. The uncertainty associated with this calculation is obtained simply as $\pm \sqrt{\text{photopeak_area}}$. The actual calculated uncertainty is slightly larger as the uncertainty in the background level is also included in the error calculation. This uncertainty is calculated simultaneously with the photopeak area within a Microsoft Excel spreadsheet.

6.4.4 Uncertainty in ^{137}Cs activity / ^{235}U mass ratio

Typical TRIGA fuel content and characterization is detailed in a report by Tomsio⁶. Further fuel burnup analyses are performed in references 8 and 9. The uncertainty associated with the ^{137}Cs activity / ^{235}U mass ratio extracted from these reports is $\pm 18\%$ based on reported ^{235}U fuel loadings and burnup. It should be noted that this uncertainty is based on the assumption that the fissile material inferred is due to TRIGA fuel. **If the fuel is in fact not TRIGA, the uncertainty quoted here can be much higher.**

6.4.5 Total Uncertainty

ENGINEERING DESIGN FILE

01/30/2004

Page 24 of 123

The resulting total uncertainty is obtained by adding the listed uncertainties in quadrature:

Total Uncertainty

$$\begin{aligned} &= \sqrt{(\text{Ultrasonic Measurement Uncertainty})^2 + (\text{Efficiency Calibration Uncertainty})^2} \\ &\quad + (\text{Photopeak Area Uncertainty})^2 + (^{137}\text{Cs activity} / ^{235}\text{U Mass Ratio Uncertainty})^2 \\ &= \sqrt{(.08)^2 + (06)^2 + (\text{Photopeak Area Uncertainty})^2 + (.18)^2} \\ &= \sqrt{(.206)^2 + (\text{Photopeak Area Uncertainty})^2} \end{aligned}$$

7 RESULTS

This chapter presents the results of the Basin scanning campaign.

Included in the Table of Results for each scanned area are the spectral filename, the acquisition time, the location within the particular area, the counts within the photopeak (CZT only), the resulting inferred fissile mass, the associated error, the critical limit L_C and the “Minimum Detectable Limit” L_D . L_C and L_D are derived in numerous sources, originally in Currie¹⁰.

L_C is the “Critical Limit”, the value above which there is a 95% confidence that the inferred measurement is not a false positive. L_C is used as a binary indicator above which the measured value is a true positive value (not background) with 95% confidence.

L_D is the value above which there is 95% confidence that the measured value is real and not a false positive. L_D is the value that can be detected above the background with 95% confidence. L_D defines the mean of a distribution, computed from the Compton continuum of the data spectrum, that has a 95% of its area above the critical level L_C .

To summarize, L_C is a measured value below which a value is considered background and above which a measured value is considered real. L_D is a measure of the minimum detectable amount measurable by the system.

7.1 North Basin

The NaI scanning campaign measured 1272 separate locations in the North Basin, excluding hot spots. Of these, 850 locations were found to have inferred masses >0.5 grams while also being above the calculated L_C and L_D values. The total of these inferred mass locations from NaI scans in the North Basin is 1154.97 gm or an average of 1.33 gm per location. The inferred masses are distributed as in Table 5. Figure 16 shows a plot of L_D versus Inferred Mass for these locations. Although L_D and Inferred Fissile Mass may be correlated, this figure is intended to illustrate the distribution of L_D and Inferred Fissile Mass values and not their correlation.

Table 5. Distribution of Inferred Fissile Mass in the North Basin as Determined by the NaI Scanning Campaign

Inferred Mass Range	Number of Locations
>0.5 g, ≤1.0 g	305
>1.0 g, ≤1.5 g	253
>1.5 g, ≤2.0 g	173
>2.0 g, ≤2.5 g	73
>2.5 g, ≤3.0 g	35
>3.0 g, ≤3.5 g	7
>3.5 g, ≤4.0 g	4
>4.0 g	0
>5.0 g	0
Total	850

ENGINEERING DESIGN FILE

01/30/2004

Page 26 of 123

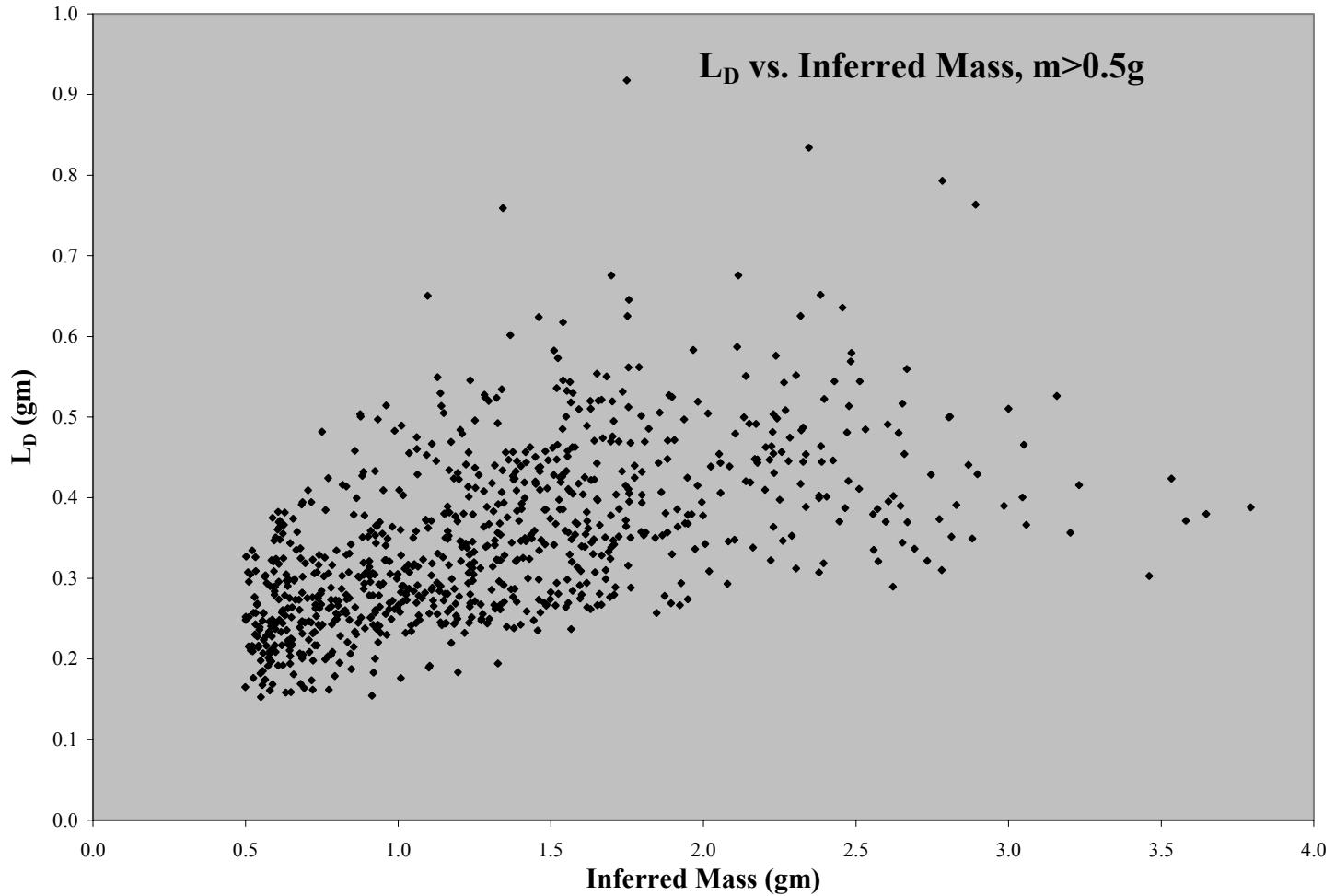


Figure 16. L_D versus Inferred Fissile Mass (>0.5 gm) for the North Basin as Determined During the NaI Scanning Campaign

ENGINEERING DESIGN FILE

01/30/2004

Page 27 of 123

The 20 largest inferred mass locations are listed in Table 6 below. A complete list of inferred mass locations is in Section 9.1 in Table 27.

Table 6. The Twenty Largest Inferred Fissile Mass Values and Locations in the North Basin as Determined During the NaI Scanning Campaign.

Filename	Livetime	Row	from	Inferred		Measurement	
			North wall	Fissile Mass	Uncertainty	L _C	L _D
	(sec)		(ft)	(gm)	(gm)	(gm)	(gm)
09-04-241.spc	60	15	6	3.79	0.48	0.21	0.39
09-04-256.spc	60	15	21	3.65	0.47	0.21	0.38
09-04-262.spc	60	15	26.9	3.58	0.46	0.21	0.37
08-31-080.spc	60	29	1.4	3.53	0.49	0.24	0.42
09-05-156.spc	60	10	24.6	3.46	0.42	0.16	0.30
09-04-199.spc	60	16	6	3.23	0.45	0.22	0.42
09-04-259.spc	60	15	24	3.20	0.42	0.19	0.36
09-05-155.spc	60	10	25.6	3.16	0.54	0.28	0.53
09-05-076.spc	60	12	26	3.06	0.42	0.20	0.37
09-05-146.spc	60	10	16.7	3.05	0.49	0.25	0.47
09-04-238.spc	60	15	3	3.05	0.43	0.21	0.40
09-05-191.spc	60	9	23.1	3.00	0.52	0.27	0.51
09-04-205.spc	60	16	8.9	2.99	0.42	0.21	0.39
09-05-023.spc	60	13	18.7	2.90	0.45	0.24	0.43
09-05-011.spc	60	13	6.9	2.89	0.71	0.38	0.76
09-04-265.spc	60	15	29.9	2.88	0.39	0.19	0.35
09-05-080.spc	60	12	27.9	2.87	0.46	0.24	0.44
09-05-184.spc	60	9	18.1	2.83	0.41	0.20	0.39
09-04-217.spc	60	16	20.8	2.81	0.38	0.19	0.35
09-05-119.spc	60	11	25.4	2.81	0.50	0.26	0.50

During the NaI scanning campaign, only one 'hot spot', in the S-row, was identified for further investigation in the North Basin and thus scanned during the CZT scanning campaign. The triple-pack assembly was utilized here. No fissile mass was inferred in the North Basin during the CZT scanning campaign. The one identified hot spot is shown in the map of Figure 2.

The scanned positions are detailed in Table 7.

ENGINEERING DESIGN FILE

01/30/2004

Page 28 of 123

Table 7. The Positions Scanned in the North Basin During the CZT Scanning Campaign. No Fissile Mass was Inferred.

Filename (.spc)	Live Time (sec)	N/S location	E/W location	Detector Spread
BS121614N01	500	Against south wall	In S-row south of row 14	12"
BS121614N02	500	"	"	"
BS121614N03	500	"	"	"

7.2 Middle Basin

The NaI scanning campaign measured 1447 separate locations in the Middle Basin, excluding hot spots. Of these, 1013 locations were found to have inferred masses >0.5 grams while also being above the calculated L_C and L_D values. The total of these inferred mass locations from NaI scans in the Middle Basin is 2002.83 gm or an average of 1.98 gm per location. The inferred masses are distributed as in Table 8. Figure 17 shows a plot of L_D versus Inferred Mass for these locations. Although L_D and Inferred Fissile Mass may be correlated, this figure is intended to illustrate the distribution of L_D and Inferred Fissile Mass values and not their correlation.

Table 8. Distribution of Inferred Fissile Mass in the Middle Basin as Determined by the NaI Scanning Campaign

Inferred Mass Range	Number of Locations
$>0.5 \text{ g}, \leq 1.0 \text{ g}$	131
$>1.0 \text{ g}, \leq 1.5 \text{ g}$	214
$>1.5 \text{ g}, \leq 2.0 \text{ g}$	220
$>2.0 \text{ g}, \leq 2.5 \text{ g}$	193
$>2.5 \text{ g}, \leq 3.0 \text{ g}$	144
$>3.0 \text{ g}, \leq 3.5 \text{ g}$	71
$>3.5 \text{ g}, \leq 4.0 \text{ g}$	18
$>4.0 \text{ g}, \leq 5.0 \text{ g}$	11
$>5.0 \text{ g}, \leq 10.0 \text{ g}$	10
$>10.0 \text{ g}$	1
Total	1013

ENGINEERING DESIGN FILE

01/30/2004

Page 29 of 123

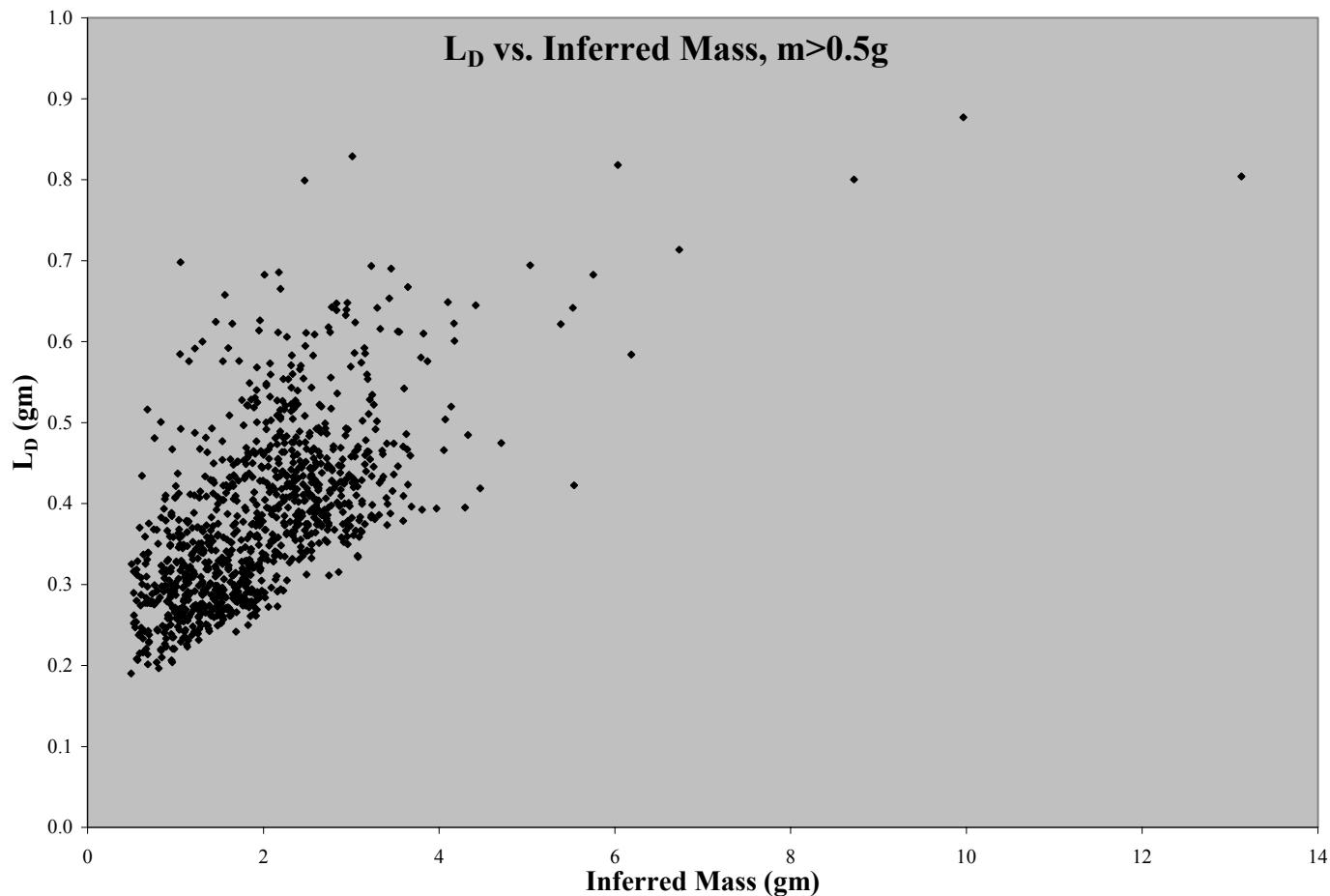


Figure 17. L_D versus Inferred Fissile Mass (>0.5 gm) for the Middle Basin as Determined During the NaI Scanning Campaign

The 20 largest inferred mass locations are listed in Table 9. A complete list of inferred mass locations is in Section 9.2 in Table 28.

ENGINEERING DESIGN FILE

01/30/2004

Page 30 of 123

Table 9. The Twenty Largest Inferred Fissile Mass Values and Locations in the Middle Basin as Determined During the NaI Scanning Campaign.

Filename	Livetime (sec)	Row	Inferred					
			from North Wall (ft)	if S Row from W Wall (ft)	Fissile Mass (gm)	Measurement Uncertainty (gm)	L _C (gm)	L _D (gm)
09-11-389.spc	60	52	5.2		13.13	2.77	0.48	0.80
09-11-266.spc	60	56	30.4		9.97	2.15	0.49	0.88
09-11-407.spc	60	51	30.1		8.72	1.89	0.45	0.80
BS050927.spc	30	S	3.5	15	6.73	1.50	0.42	0.71
BS050931.spc	30	S	34.2	15	6.19	1.36	0.36	0.58
09-12-287.spc	60	40	30.3		6.03	1.38	0.43	0.82
09-13-086.spc	60	31	33.8		5.75	1.29	0.37	0.68
09-11-270.spc	60	56	28.4		5.54	1.18	0.23	0.42
BS050928.spc	30	S	4.5	8	5.52	1.25	0.37	0.64
09-12-440.spc	60	37	22.1		5.39	1.20	0.34	0.62
BS050929.spc	30	S	5.5	8	5.04	1.18	0.39	0.69
09-13-016.spc	60	31	36.5		4.71	1.03	0.26	0.47
09-11-358.spc	60	52	28.1		4.47	0.97	0.23	0.42
09-12-431.spc	60	37	31		4.42	1.02	0.34	0.65
09-12-109.spc	60	44	15.3		4.33	0.96	0.26	0.48
09-12-520.spc	60	35	31.6		4.30	0.93	0.22	0.40
09-12-434.spc	60	37	28.1		4.18	0.96	0.32	0.60
09-12-446.spc	60	37	16.1		4.17	0.97	0.33	0.62
09-11-356.spc	60	52	32		4.14	0.93	0.29	0.52
09-12-443.spc	60	37	19.1		4.10	0.97	0.34	0.65

During the NaI scanning campaign, 32 separate hot spots, 12 of these in the S-row, were identified for further investigation in the Middle Basin and thus scanned during the CZT scanning campaign. The triple-pack assembly was utilized here. Because some hotspots occurred in groups as well, 13 separate triple-pack locations were scanned, resulting in 39 individual locations scanned. Fissile mass was inferred in 4 of these locations, none of which were in the S-row. Only one of these locations indicated an inferred fissile mass >0.5 grams (1.1 grams). The identified hot spots are indicated in Figure 18, with the location indicated where >0.5 grams fissile mass was inferred.

The scanned position is detailed in Table 10.

ENGINEERING DESIGN FILE

01/30/2004

Page 31 of 123

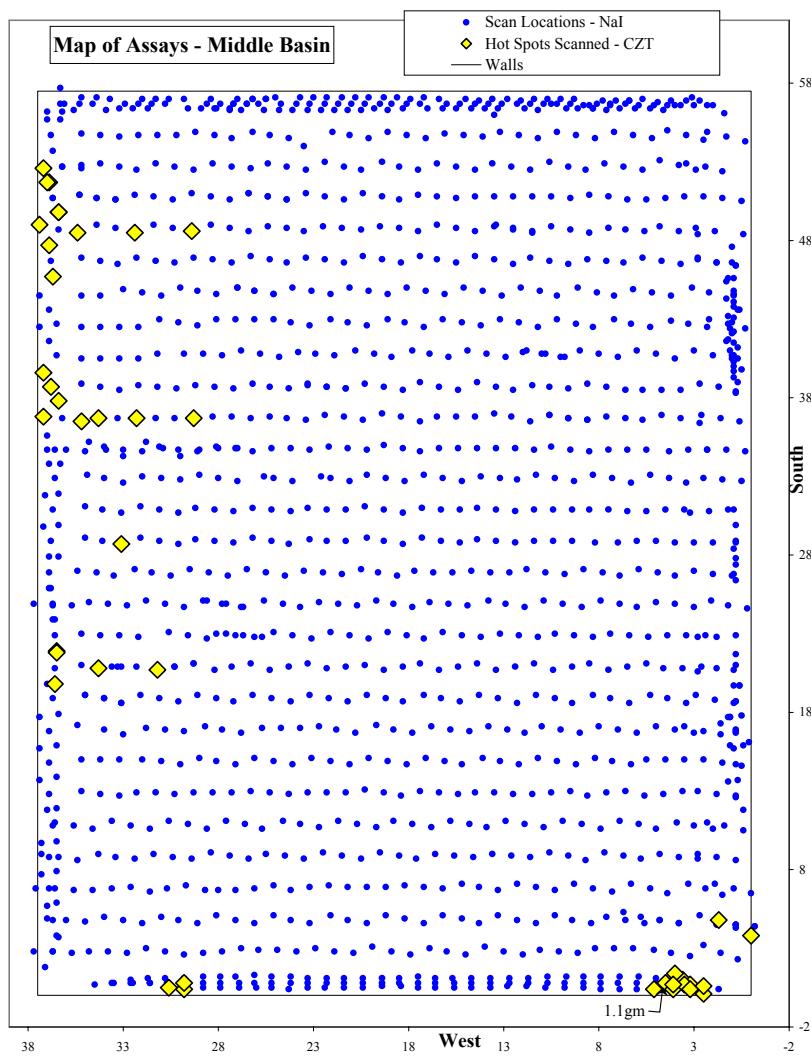


Figure 18. Map of Positions Scanned in the Middle Basin During the Basin Scanning Campaign. Inferred Fissile Mass Value >0.5 grams Identified During CZT Scanning Campaign is Indicated.

Table 10. The Position Scanned in the Middle Basin During the CZT Scanning Campaign Resulting in Inferred Fissile Mass Value >0.5 grams and Measurement Uncertainty as well as the Associated L_C and L_D values.

Filename .spec	Live Time (sec)	Row 30	from South Wall (ft) 6	counts (661.67)	Inferred Fissile Mass (gm) 1.11	Measurement Uncertainty (gm) .60	L_C (gm) .19	L_D (gm) .43
BS121602m03	500			510				
total					1.11	.60		

7.3 South Basin

ENGINEERING DESIGN FILE

01/30/2004

Page 32 of 123

The NaI scanning campaign measured 3396 separate locations in the South Basin, excluding hot spots. Of these, 88 locations were found to have inferred masses >0.5 grams while also being above the calculated L_C and L_D values. The total of these inferred mass locations from NaI scans in the South Basin is 204.50 gm or an average of 2.32 gm per location. The inferred masses are distributed as in Table 11. Figure 19 shows a plot of L_D versus Inferred Fissile Mass for these locations. Although L_D and Inferred Fissile Mass may be correlated, this figure is intended to illustrate the distribution of L_D and Inferred Fissile Mass values and not their correlation.

Table 11. Distribution of Inferred Fissile Mass in the South Basin as Determined by the NaI Scanning Campaign

Inferred Mass Range	Number of Locations
$>0.5 \text{ g}, \leq 1.0 \text{ g}$	47
$>1.0 \text{ g}, \leq 1.5 \text{ g}$	19
$>1.5 \text{ g}, \leq 2.0 \text{ g}$	5
$>2.0 \text{ g}, \leq 2.5 \text{ g}$	2
$>2.5 \text{ g}, \leq 3.0 \text{ g}$	5
$>3.0 \text{ g}, \leq 3.5 \text{ g}$	1
$>3.5 \text{ g}, \leq 4.0 \text{ g}$	1
$>4.0 \text{ g}, \leq 5.0 \text{ g}$	3
$>5.0 \text{ g}, \leq 10.0 \text{ g}$	1
$>10.0 \text{ g}, \leq 20.0 \text{ g}$	1
$>20.0 \text{ g}, \leq 30.0 \text{ g}$	2
$>30.0 \text{ g}$	1
Total	88

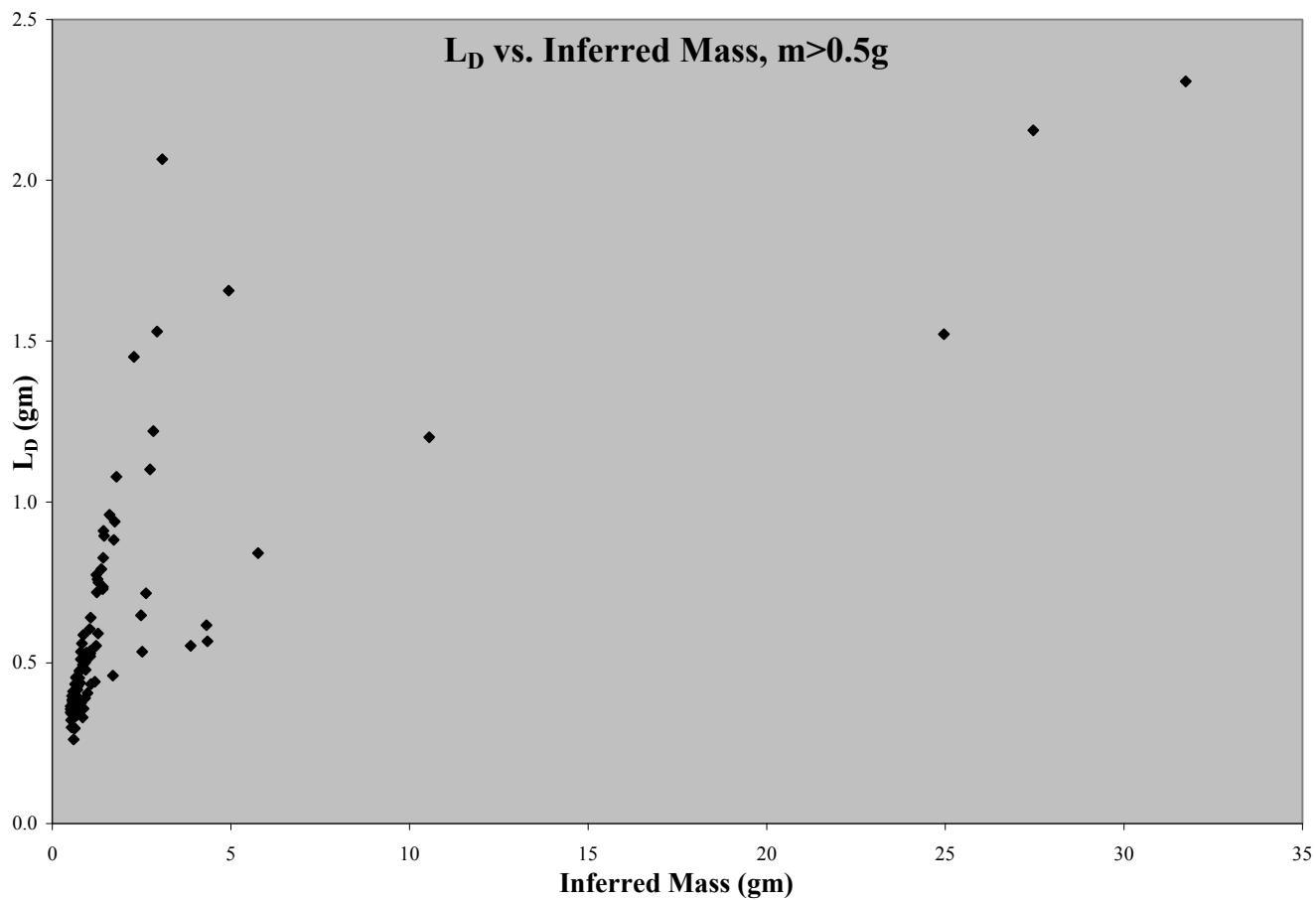


Figure 19. L_D versus Inferred Fissile Mass (>0.5 gm) for the South Basin as Determined During the NaI Scanning Campaign

The 20 largest inferred mass locations are listed in Table 12 below. A complete list of inferred mass locations is in Section 9.3 in Table 29. Figure 20 shows a map of the South Basin including positions scanned during the NaI scanning campaign and Hot Spots scanned. Locations where inferred mass > 5g as well as inferred mass between 0.5 g and 5 g are indicated.

ENGINEERING DESIGN FILE

01/30/2004

Page 34 of 123

Table 12. The Twenty Largest Inferred Fissile Mass Values and Locations in the South Basin as Determined During the NaI Scanning Campaign.

Filename	from	from	Inferred	Measurement	L _C	L _D
	LiveTime (sec)	East wall (ft)	South wall (ft)	Fissile Mass (gm)	Uncertainty (gm)	(gm)
09-22-941.spc	30.0	71.17	2.47	31.73	3.70	1.31
09-22-938.spc	30.0	70.75	2.47	27.46	3.26	1.22
09-19-188.spc	60.0	72.58	1.47	24.96	2.80	0.85
09-19-185.spc	60.0	70.58	1.47	10.55	1.41	0.64
09-22-152.spc	30.0	70.50	31.47	5.76	0.86	0.49
09-22-431.spc	30.0	34.50	37.47	4.94	1.36	0.84
09-20-572.spc	60.0	52.50	13.47	4.34	0.60	0.31
09-21-337.spc	60.0	38.50	18.47	4.31	0.64	0.32
09-21-792.spc	30.0	64.50	26.47	3.88	0.56	0.30
09-25-105.spc	30.0	74.25	25.47	3.08	1.54	1.01
09-25-258.spc	30.0	75.75	9.47	2.93	1.15	0.75
01-31-038.spc	30.0	38.83	41.47	2.83	0.97	0.60
09-21-611.spc	30.0	8.50	22.47	2.74	0.87	0.56
09-25-051.spc	30.0	71.25	29.47	2.62	0.56	0.36
09-21-338.spc	60.0	38.50	19.47	2.52	0.46	0.27
01-31-073.spc	30.0	7.50	42.39	2.48	0.53	0.33
09-25-261.spc	30.0	74.25	9.47	2.29	1.07	0.71
09-22-883.spc	30.0	49.50	0.47	1.80	0.85	0.53
01-31-049.spc	30.0	42.83	40.47	1.75	0.73	0.46
01-31-025.spc	30.0	48.83	42.47	1.72	0.68	0.43

ENGINEERING DESIGN FILE

01/30/2004

Page 35 of 123

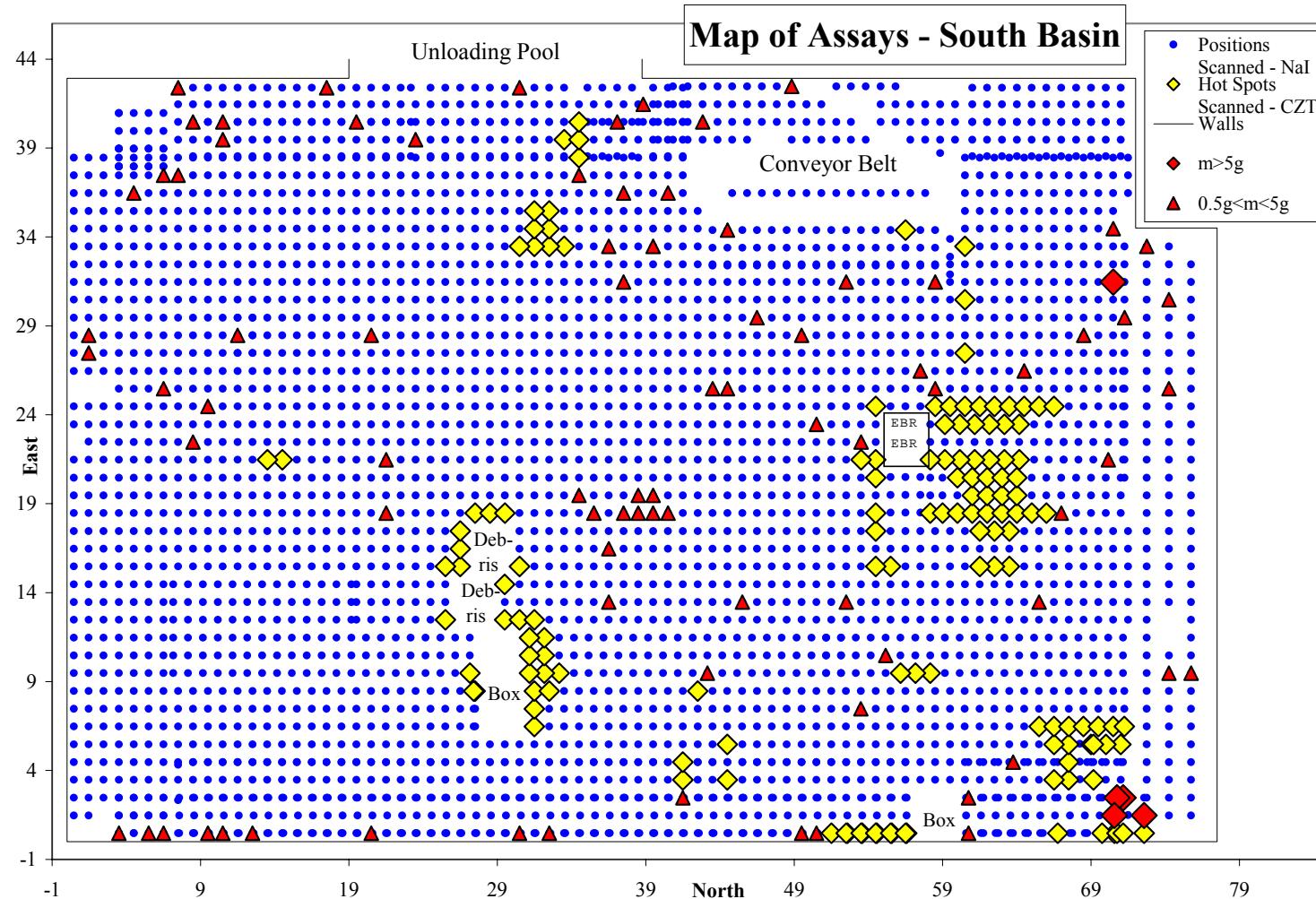


Figure 20. Map of Positions Scanned in the South Basin During the Basin Scanning Campaign. Inferred Fissile Mass Values >0.5 grams Identified During NaI Scanning Campaign are Indicated. Inferred Fissile Mass Values >5 grams are Indicated Separately.

ENGINEERING DESIGN FILE

01/30/2004

Page 36 of 123

During the NaI scanning campaign, it was clear that the South Basin was the most prolific source of hot spots. Correspondingly, the majority of time and effort advanced during the CZT scanning campaign went toward the South Basin.

During the NaI scanning campaign, 133 separate hot spots were identified for further investigation in the South Basin and thus scanned during the CZT scanning campaign. The triple-pack assembly was utilized so that the identified locations, as well as locations immediately adjacent to the identified locations, were scanned. Because some hotspots occurred in groups as well, 90 separate triple-pack locations were scanned, resulting in 270 individual locations scanned. Fissile mass >0.5 grams was inferred in 6 of these locations, 1 of which indicated >5 grams fissile mass as indicated in Table 13. The identified hot spots are indicated in Figure 21. The locations where fissile mass >0.5 g was inferred are indicated.

Figure 21 also indicates the locations of activity observed in the 1173 keV and/or 1332 keV photopeak(s), indicative of activated ^{60}Co within iron or steel. The figure further indicates the presence of ^{152}Eu activity observed in the 1408 keV photopeak.

The scanned positions are detailed in Table 13.

Table 13. The Positions Scanned in the South Basin During the CZT Scanning Campaign Resulting in Inferred Fissile Mass Values >0.5 grams and Measurement Uncertainties as well as the Associated L_C and L_D values.

Filename (.spc)	Live Time (sec)	from East Wall (ft)	from North Wall (ft)	Detector Spread	counts (661.67)	Inferred Fissile Mass (gm)	Measurement Uncertainty (gm)	L_C (gm)	L_D (gm)
BS0712_mcb26_06	500	32.5	35.5	12"	20390	33.5	7.1	.67	1.40
BS0712_mcb26_11	500	34.5	39.5	"	2767	4.5	1.1	.22	.50
BS0712_mcb26_12	500	34.5	38.5	"	2673	4.4	1.1	.24	.54
BS0712_mcb25_13	500	27.5	18.5	"	2182	4.2	.91	.14	.33
BS0712_mcb27_14	500	26.5	17.5	"	1097	2.4	1.1	.34	.74
BS0822035	500	71.5	1.5	"	478	.92	.48	.17	.39
total						49.9	7.42		

ENGINEERING DESIGN FILE

01/30/2004

Page 37 of 123

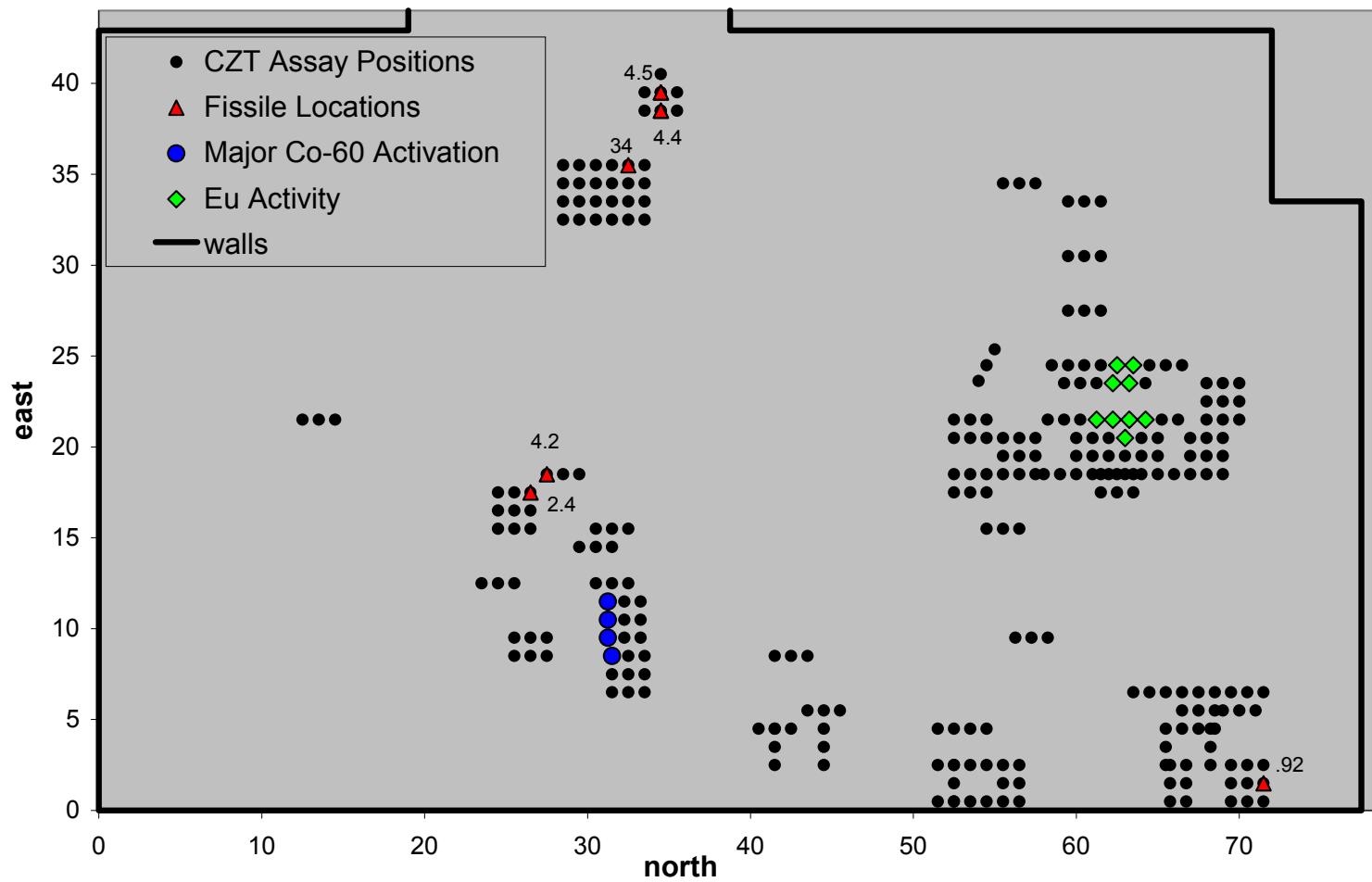


Figure 21. Map of Positions Scanned in the South Basin During the Basin Scanning Campaign. Inferred Fissile Mass Values >0.5 grams Identified During CZT Scanning Campaign are Indicated. Locations of High Eu-152 and Co-60 Activity are also Indicated.

7.4 South Basin Unload Pool

The NaI scanning campaign measured 321 separate locations in the South Basin Unload Pool, excluding hot spots. Of these, 29 locations were found to have inferred masses >0.5 grams while also being above the calculated L_C and L_D values. The total of these inferred mass locations from NaI scans in the South Basin Unload Pool is 134.04 gm or an average of 4.62 gm per location. The inferred masses are distributed as in Table 14. Figure 22 shows a plot of L_D versus Inferred Mass for these locations. Although L_D and Inferred Fissile Mass may be correlated, this figure is intended to illustrate the distribution of L_D and Inferred Fissile Mass values and not their correlation.

Table 14. Distribution of Inferred Fissile Mass in the South Basin Unload Pool as Determined by the NaI Scanning Campaign

Inferred Mass Range	Number of Locations
$>0.5 \text{ g}, \leq 1.0 \text{ g}$	9
$>1.0 \text{ g}, \leq 1.5 \text{ g}$	4
$>1.5 \text{ g}, \leq 2.0 \text{ g}$	1
$>2.0 \text{ g}, \leq 2.5 \text{ g}$	1
$>2.5 \text{ g}, \leq 3.0 \text{ g}$	3
$>3.0 \text{ g}, \leq 3.5 \text{ g}$	3
$>3.5 \text{ g}, \leq 4.0 \text{ g}$	0
$>4.0 \text{ g}, \leq 5.0 \text{ g}$	2
$>5.0 \text{ g}, \leq 10.0 \text{ g}$	2
$>10.0 \text{ g}, \leq 20.0 \text{ g}$	3
$>20.0 \text{ g}, \leq 40.0 \text{ g}$	0
$>40.0 \text{ g}, \leq 45.0 \text{ g}$	1
$>45.0 \text{ g}$	0
Total	29

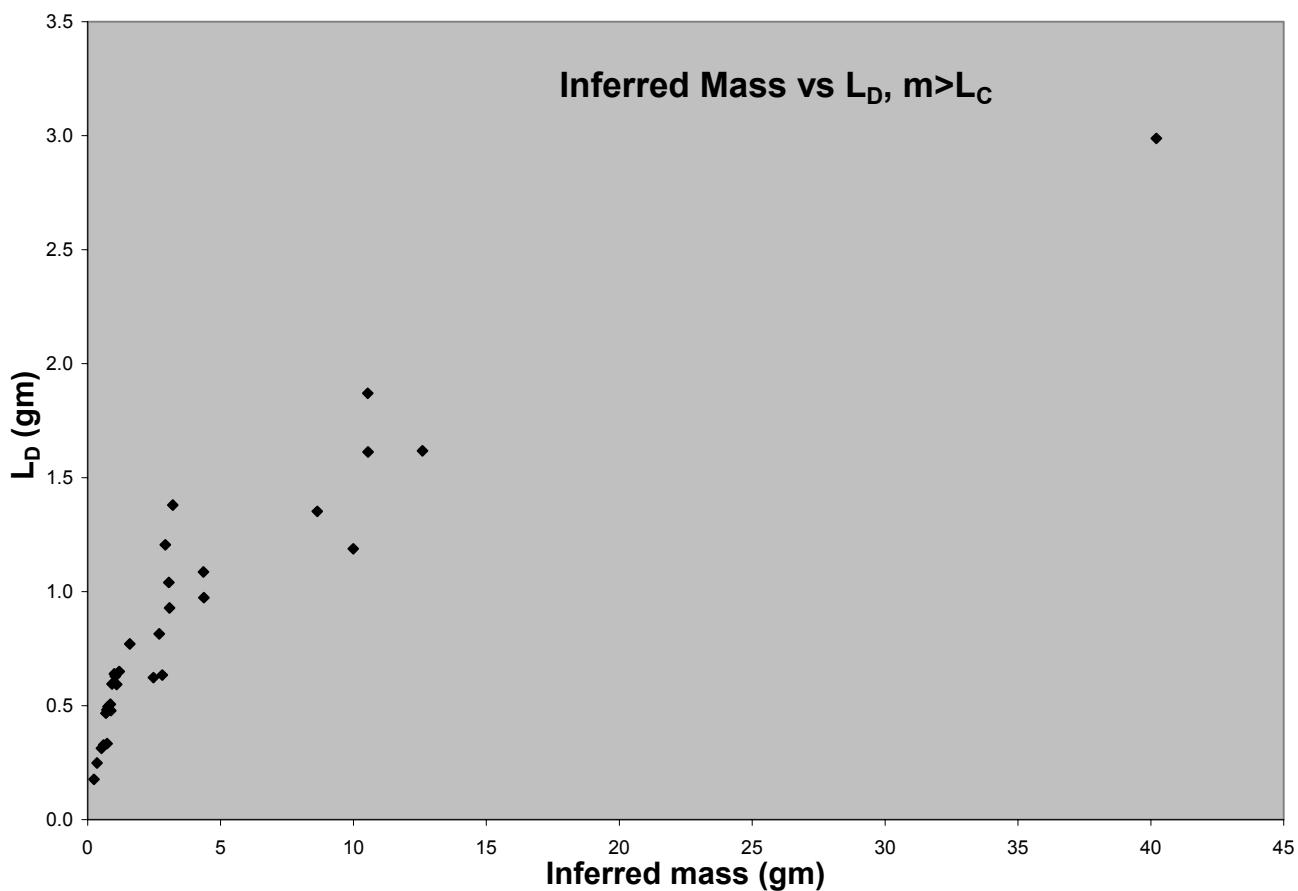


Figure 22. L_D versus Inferred Fissile Mass (>0.5 gm) for the South Basin Unload Pool as Determined During the NaI Scanning Campaign

The 20 largest inferred mass locations are listed in Table 15 below. A complete list of inferred mass locations is in Section 9.4 in Table 30. Figure 23 shows a map of the South Basin Unload Pool including positions scanned during the NaI scanning campaign and Hot Spots scanned. Locations where inferred mass > 5 grams as well as inferred mass between 0.5 grams and 5 grams are indicated.

ENGINEERING DESIGN FILE

01/30/2004

Page 40 of 123

Table 15. The Twenty Largest Inferred Fissile Mass Values and Locations in the South Basin Unload Pool as Determined During the NaI Scanning Campaign.

Filename	Live Time	from	from	Inferred	Measurement	L _C	L _D
		East wall	South wall	Fissile Mass	Uncertainty		
01-30-004.spc	30.00	0.25	4	40.21	2.51	1.59	2.99
09-24-089.spc	30.00	3	4	12.60	1.24	0.89	1.62
01-30-003.spc	30.00	0.25	3	10.55	1.34	0.84	1.61
01-30-013.spc	30.00	2	7	10.54	1.57	0.96	1.87
01-30-010.spc	30.00	1	5	9.99	0.94	0.64	1.19
01-30-006.spc	30.00	0.25	5	8.64	1.10	0.71	1.35
09-24-008.spc	30.00	0.25	1.25	4.37	0.73	0.52	0.97
09-24-095.spc	30.00	1	4	4.35	0.81	0.57	1.09
09-24-017.spc	30.00	3	1.25	3.20	1.04	0.70	1.38
01-30-008.spc	30.00	1	7	3.08	0.75	0.47	0.93
01-30-011.spc	30.00	2	6	3.06	0.85	0.52	1.04
09-24-020.spc	30.00	4	1.25	2.92	0.90	0.61	1.21
09-24-116.spc	30.00	8.5	7	2.81	0.46	0.35	0.63
09-24-092.spc	30.00	2	4	2.70	0.60	0.43	0.81
09-24-046.spc	30.00	13	0.25	2.47	0.46	0.32	0.62
01-30-027.spc	30.00	1	15	1.59	0.62	0.38	0.77
01-29-057.spc	30.00	15	0.25	1.19	0.51	0.32	0.65
09-24-064.spc	30.00	11	3	1.09	0.44	0.29	0.59
09-24-065.spc	30.00	11	4	1.03	0.45	0.31	0.63
09-24-016.spc	30.00	3	0.25	1.00	0.48	0.31	0.64

ENGINEERING DESIGN FILE

01/30/2004

Page 41 of 123

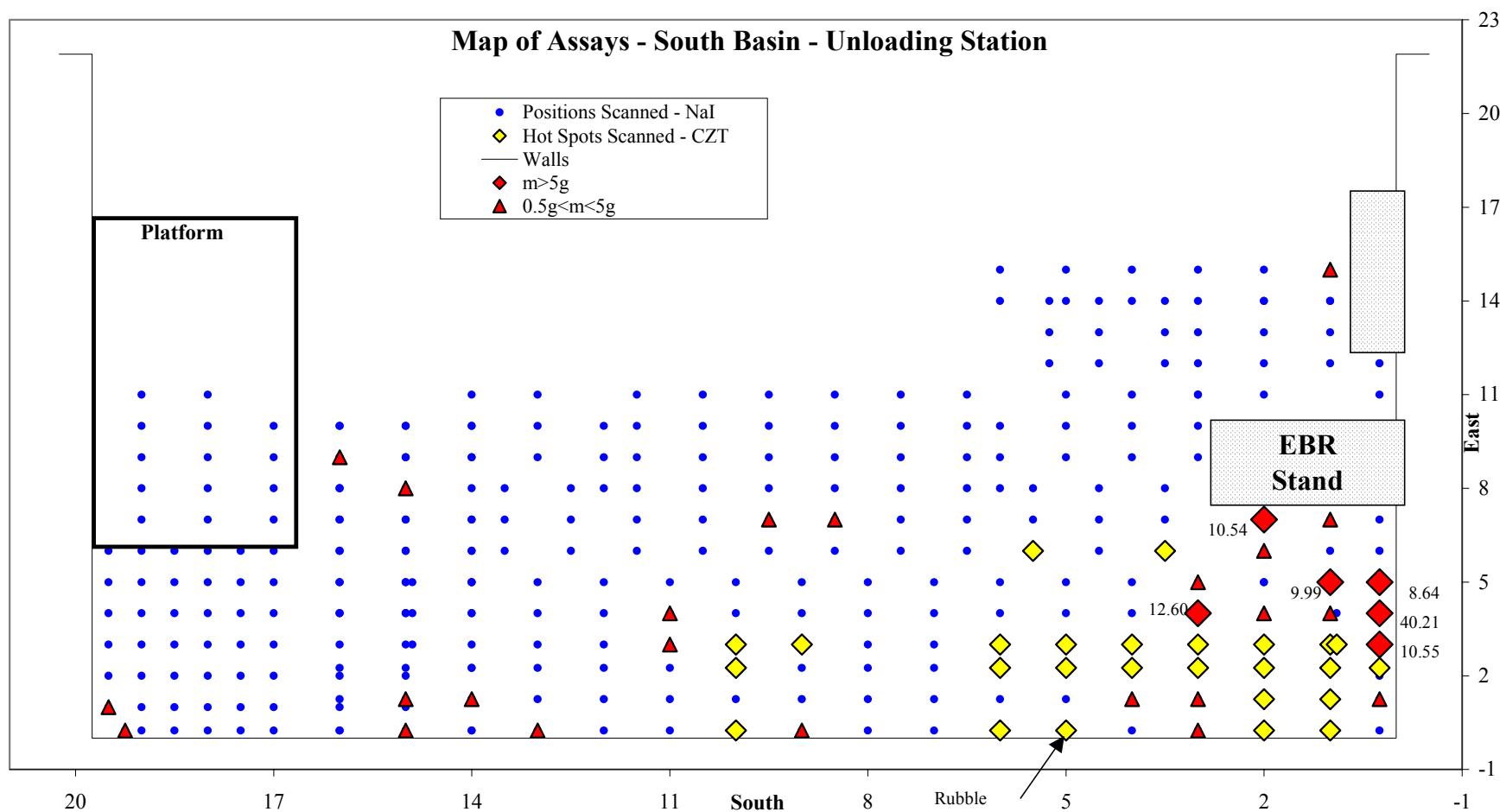


Figure 23. Map of Positions Scanned in the South Basin Unload Pool During the Basin Scanning Campaign. Inferred Fissile Mass Values >0.5 grams Identified During NaI Scanning Campaign are Indicated.

ENGINEERING DESIGN FILE

01/30/2004

Page 42 of 123

During the NaI scanning campaign, 25 separate hot spots were identified for further investigation in the South Basin Unload Pool and thus scanned during the CZT scanning campaign. The triple-pack assembly was utilized so that the identified locations, as well as locations immediately adjacent to the identified locations, were scanned. Because some hotspots occurred in groups as well, 18 separate triple-pack locations were scanned, resulting in 54 individual locations scanned. Fissile mass >0.5 grams was inferred in 9 of these locations, none above 5 grams. The identified hot spots are indicated in Figure 24, with the locations indicated where >0.5 grams fissile mass was inferred.

The scanned positions are detailed in Table 16.

Table 16. The Positions Scanned in the South Basin Unload Pool During the CZT Scanning Campaign Resulting in Inferred Fissile Mass Values >0.5 grams and Measurement Uncertainties as well as the Associated L_C and L_D values.

Filename (.spc)	Live Time (sec)	from East Wall (ft)	from South Wall (ft)	Detector Spread	counts (661.67)	Inferred Fissile Mass (gm)	Measurement Uncertainty (gm)	L _C (gm)	L _D (gm)
BS121909up1	500	1	3	12"	1827	3.5	1.32	.37	.79
BS121910up1	500	2	3	"	1084	2.1	.88	.27	.60
BS121818	500	3	2.25	"	948	2.1	.90	.27	.57
BS121812	500	1	2.25	"	724	1.6	.87	.27	.59
BS121821	500	4	2.25	"	532	1.2	.78	.25	.55
BS121911up2	500	3	4	"	480	.79	.67	.22	.49
BS121811	500	1	1.25	"	459	.75	.50	.16	.37
BS121911up1	500	3	3	"	435	.84	.62	.20	.46
BS121815	500	2	2.25	"	316	.69	.57	.18	.42
Total						13.57	2.47		

ENGINEERING DESIGN FILE

01/30/2004

Page 43 of 123

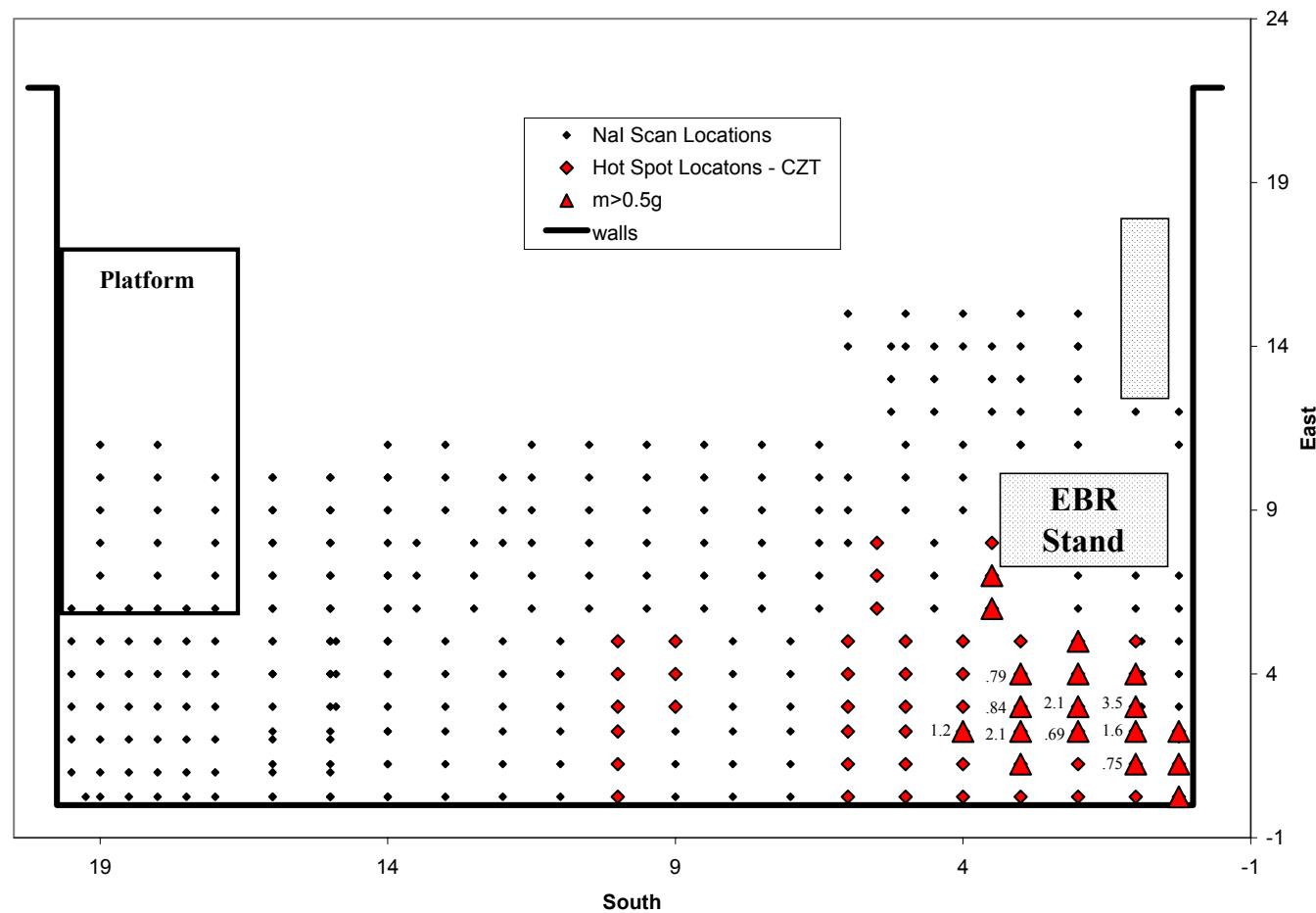


Figure 24. Map of Positions Scanned in the South Basin Unload Pool During the Basin Scanning Campaign. Inferred Fissile Mass Values >0.5 grams Identified During CZT Scanning Campaign are Indicated.

7.5 Transfer Channel

The NaI scanning campaign measured 1593 separate locations in the Transfer Channel, excluding hot spots. Of these, 171 locations were found to have inferred masses >0.5 grams while also being above the calculated L_C and L_D values. The total of these inferred mass locations from NaI scans in the Transfer Channel is 229.98 gm or an average of 1.35 gm per location. The inferred masses are distributed as in Table 17. Figure 25 shows a plot of L_D versus Inferred Mass for these locations. Although L_D and Inferred Fissile Mass may be correlated, this figure is intended to illustrate the distribution of L_D and Inferred Fissile Mass values and not their correlation.

Table 17. Distribution of Inferred Fissile Mass in the Transfer Channel as Determined by the NaI Scanning Campaign

Inferred Mass Range	Number of Locations
$>0.5 \text{ g}, \leq 1.0 \text{ g}$	145
$>1.0 \text{ g}, \leq 1.5 \text{ g}$	16
$>1.5 \text{ g}, \leq 2.0 \text{ g}$	0
$>2.0 \text{ g}, \leq 2.5 \text{ g}$	3
$>2.5 \text{ g}, \leq 3.0 \text{ g}$	1
$>3.0 \text{ g}, \leq 3.5 \text{ g}$	0
$>3.5 \text{ g}, \leq 4.0 \text{ g}$	2
$>4.0 \text{ g}, \leq 5.0 \text{ g}$	0
$>5.0 \text{ g}, \leq 10.0 \text{ g}$	0
$>10.0 \text{ g}, \leq 20.0 \text{ g}$	1
$>20.0 \text{ g}, \leq 30.0 \text{ g}$	2
$>30.0 \text{ g}, \leq 35.0 \text{ g}$	1
$>35.0 \text{ g}$	0
Total	171

ENGINEERING DESIGN FILE

01/30/2004

Page 45 of 123

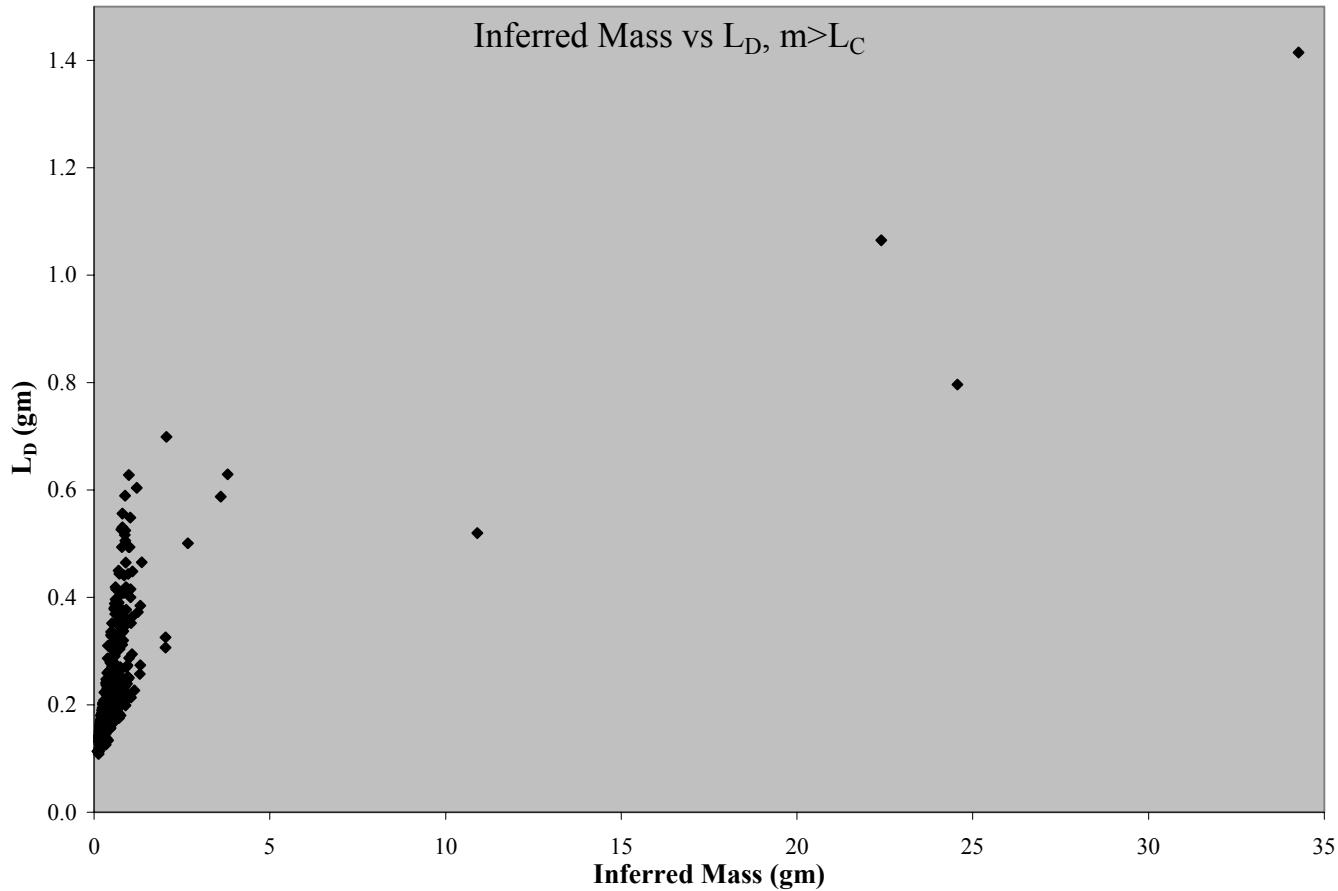


Figure 25. L_D versus Inferred Fissile Mass (>0.5 gm) for the Transfer Channel as Determined During the NaI Scanning Campaign

The 20 largest inferred mass locations are listed in Table 18 below. A complete list of inferred mass locations is in Section 9.5 in Table 31. Figure 26 shows the locations of NaI scans, CZT hot spot scans, and locations where fissile mass >0.5 grams and >5 grams was inferred.

It should be noted here that the positions in the East/West direction are defined such that the access groove in the decking covering the west side of the Transfer Channel is at the 10 foot location, while the access groove in the decking covering the east side of the Transfer Channel is at the 15 foot location.

ENGINEERING DESIGN FILE

01/30/2004

Page 46 of 123

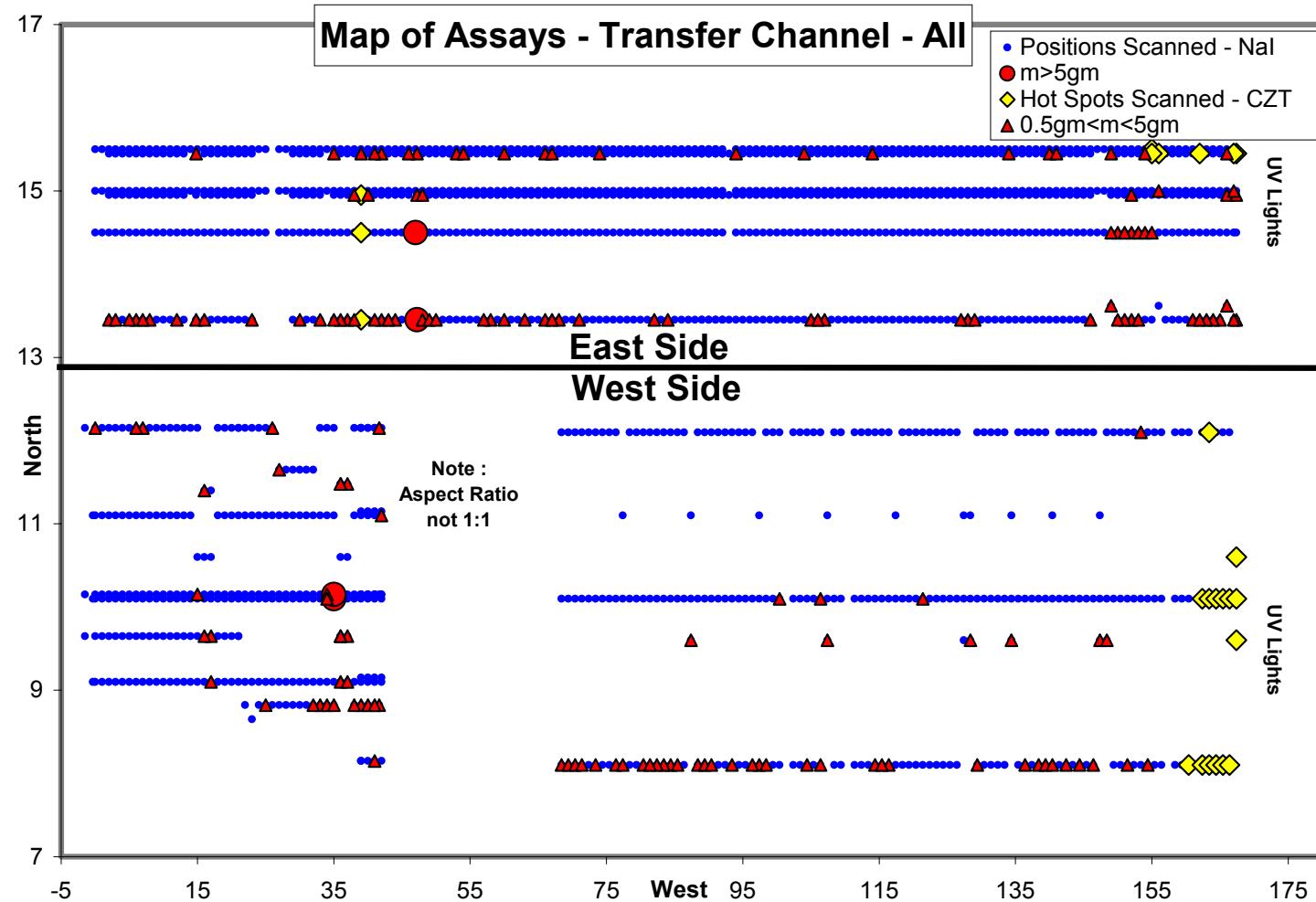


Figure 26. Map of Positions Scanned in the Transfer Channel During the Basin Scanning Campaign. Inferred Fissile Mass Values >0.5 grams Identified During NaI Scanning Campaign are Indicated. Inferred Fissile Mass Values >5 grams are Indicated Separately.

ENGINEERING DESIGN FILE

01/30/2004

Page 47 of 123

Table 18. The Twenty Largest Inferred Fissile Mass Values and Locations in the Transfer Channel as Determined During the NaI Scanning Campaign.

Filename	Live Time	North Wall	from	E/W	Inferred	Measurement			
			(sec)	(ft)	Position	Fissile Mass	Uncertainty	L _C	L _D
09-17-113.spc	60.00	35		10.1		34.27	2.17	0.84	1.41
09-14-117.spc	60.00	47.2		13.45		24.56	1.70	0.47	0.80
09-17-251.spc	60.00	35		10.15		22.40	1.72	0.64	1.06
09-13-573.spc	60.00	47		14.5		10.91	1.12	0.30	0.52
09-17-248.spc	60.00	34		10.15		3.80	0.77	0.33	0.63
09-14-116.spc	60.00	47.2		14.95		3.60	0.74	0.31	0.59
09-25-615.spc	30.00	153.4		12.1		2.67	0.64	0.26	0.50
09-17-110.spc	60.00	34		10.1		2.06	0.69	0.34	0.70
09-17-274.spc	60.00	41.66		12.15		2.03	0.50	0.16	0.31
09-14-120.spc	60.00	48		13.45		2.03	0.51	0.16	0.33
09-25-484.spc	30.00	114.4		8.1		1.36	0.49	0.23	0.47
09-25-391.spc	30.00	84.4		8.1		1.31	0.45	0.20	0.38
09-17-259.spc	60.00	37		11.48		1.31	0.41	0.13	0.27
09-17-297.spc	60.00	41		8.15		1.30	0.40	0.12	0.26
09-25-403.spc	30.00	88.4		8.1		1.24	0.43	0.19	0.37
09-25-568.spc	30.00	138.4		8.1		1.21	0.55	0.29	0.60
09-14-078.spc	60.00	33		13.45		1.14	0.37	0.11	0.23
09-25-592.spc	30.00	146.4		8.1		1.09	0.45	0.22	0.45
09-17-246.spc	60.00	33		8.82		1.08	0.39	0.13	0.29
09-25-340.spc	30.00	68.4		8.1		1.08	0.41	0.18	0.36

During the NaI scanning campaign, 23 separate hot spots were identified for further investigation in the Transfer Channel and thus scanned during the CZT scanning campaign. The triple-pack assembly was utilized so that the identified locations, as well as locations immediately adjacent to the identified locations, were scanned. Because some hotspots occurred in groups as well, and in order to assure complete coverage of the hot spots, 29 separate triple-pack locations were scanned, resulting in 87 individual locations scanned. Fissile mass was inferred in 3 of these locations, none of which exceeded 0.1 grams. The identified hot spots are indicated in Figure 6.

7.6 Loading Pits

During the NaI scanning campaign it became apparent that most of the region leading from the Transfer Channel to the North and South Loading Pits was of high activity and would have to be re-scanned as hot spots during the CZT scanning campaign. Accordingly, it was decided that the most efficient way to scan the hot spots was to rescan the entire region during the CZT scanning campaign.

A limited subset of the NaI scan data was usable. The NaI scanning campaign measured 114 separate locations in the Transfer Channel to the Loading Pits and the North and South Pits, 6 of which presented usable data. Of these, 5 locations were found to have inferred masses >0.5 grams while also being above the calculated L_C and

ENGINEERING DESIGN FILE

01/30/2004

Page 48 of 123

L_D values. The total of these inferred mass locations from NaI scans in the this area is 8.19 gm or an average of 1.64 gm per location. The inferred masses are distributed as in Table 19. Figure 27 shows a plot of L_D versus Inferred Mass for these locations. Although L_D and Inferred Fissile Mass may be correlated, this figure is intended to illustrate the distribution of L_D and Inferred Fissile Mass values and not their correlation.

Table 19. Distribution of Inferred Fissile Mass in the Channel to Loading Pits and Loading Pits as Determined by the NaI Scanning Campaign

Inferred Mass Range	Number of Locations
>0.5 g, ≤1.0 g	2
>1.0 g, ≤2.0 g	2
>2.0 g, ≤3.0 g	0
>3.0 g, ≤4.0 g	0
>4.0 g, ≤5.0 g	1
>5 g	0
Total	5

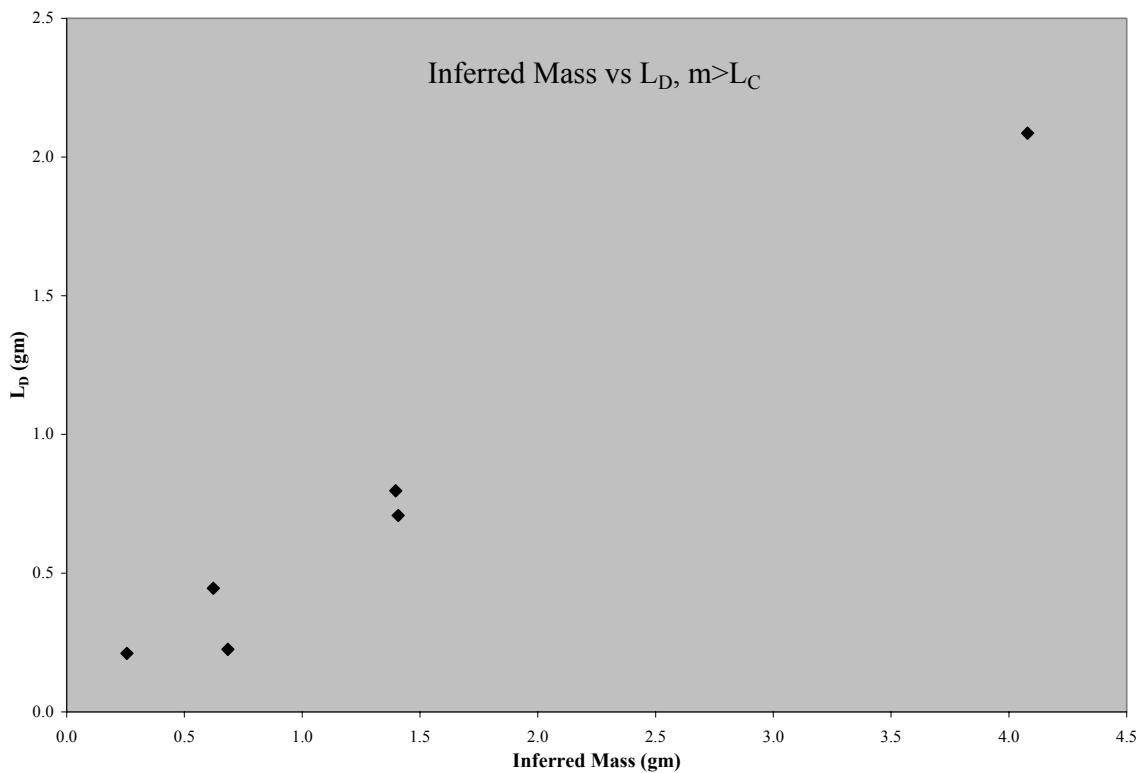


Figure 27. L_D versus Inferred Fissile Mass (>0.5 gm) for the Channel to Loading Pits and Pits as Determined During the NaI Scanning Campaign

The 5 inferred mass locations are listed in Table 20 below.

ENGINEERING DESIGN FILE

01/30/2004

Page 49 of 123

Table 20. Inferred Fissile Mass Values and Locations in the Channel to Loading Pits and Loading Pits as Determined During the NaI Scanning Campaign.

Filename	from	N/S	Inferred	Measurement		
	LiveTime	East wall position	Fissile Mass	Uncertainty	L _C	L _D
09-14-341.spc	(sec)	(ft)	(ft)	(gm)	(gm)	(gm)
09-14-341.spc	60.00	45	-9	4.08	1.57	1.03 2.09
09-14-374.spc	60.00	47.8	-11	1.41	0.51	0.34 0.71
09-14-371.spc	60.00	47	-11	1.40	0.57	0.38 0.80
09-15-237.spc	60.00	47	-2	0.68	0.14	0.10 0.23
09-14-352.spc	60.00	43	-12	0.62	0.31	0.20 0.45

It should be noted here that the positions in the East/West direction are measured from the far wall of the transfer channel opposite where the Channel to the Pits leads off of the Transfer Channel , while the center of the Channel to the Pits is defined as 45 feet.

Figure 28 shows a map of NaI positions scanned, and indicate locations and amounts of fissile mass inferred.

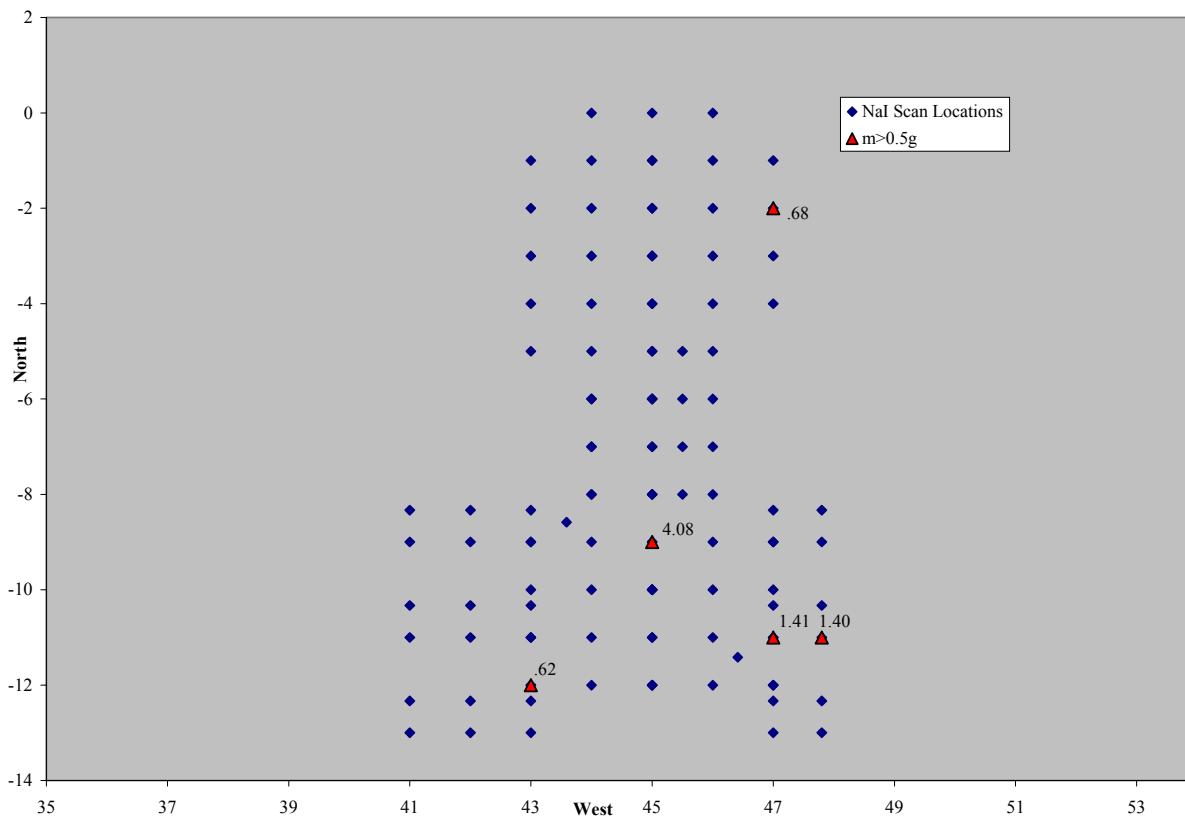


Figure 28. Map of Positions Scanned in the Channel to Loading Pits and Loading Pits During the Basin Scanning Campaign. Inferred Fissile Mass Values >0.5 grams Identified During NaI Scanning Campaign are Indicated.

7.6.1 Channel Leading to Loading Pits - CZT

ENGINEERING DESIGN FILE

01/30/2004

Page 50 of 123

During the CZT scanning campaign, 19 separate triple-pack scan positions, or 57 individual locations, were scanned in the channel leading from the Transfer Channel to the North and South Loading Pits. Only one location was found to have fissile material present.

The scanned position is detailed in Table 21.

Table 21. The Position Scanned in the Channel to Loading Pits and Loading Pits During the CZT Scanning Campaign Resulting in Inferred Fissile Mass Values >0.5 grams and Measurement Uncertainties as well as the Associated L_C and L_D values.

Filename (.spc)	Live Time (sec)	In Channel	from East Wall of Transfer Channel (ft)	Detector Spread	counts	Inferred Fissile Mass (gm)	Measurement Uncertainty (gm)	L _C (gm)	L _D (gm)
BS120416	500	South Side	9	24"	646	1.3	.50	.18	.41
total						1.3	.50		

The channel is mapped in Figure 29 with the inferred mass location indicated.

ENGINEERING DESIGN FILE

01/30/2004

Page 51 of 123

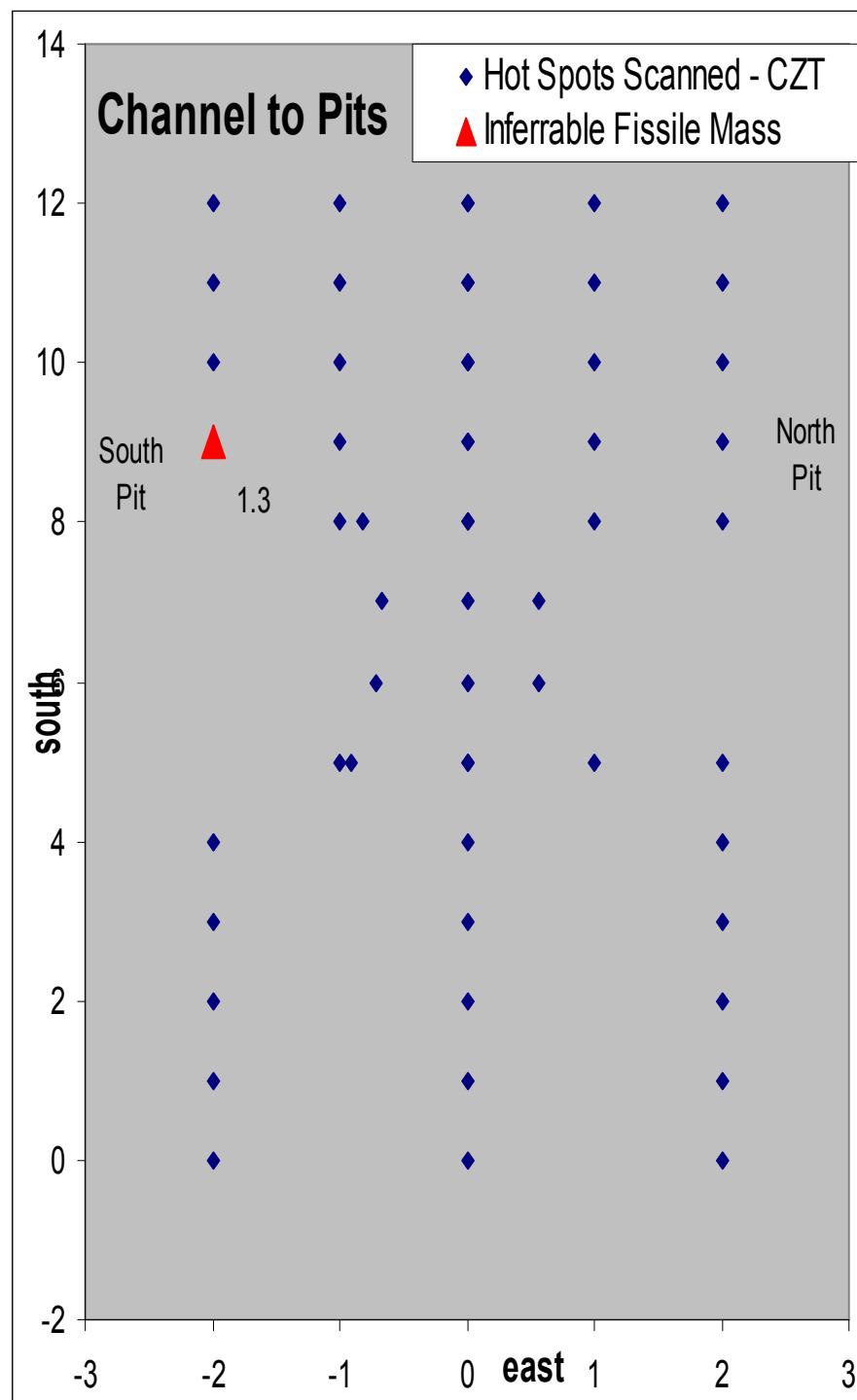


Figure 29. Map of Positions Scanned in the Transfer Channel During the Basin Scanning Campaign.

Inferred Fissile Mass Value >0.5 grams Identified During NaI Scanning Campaign is Indicated.

7.6.2 North Loading Pit

ENGINEERING DESIGN FILE

01/30/2004

Page 52 of 123

Due to crane access limitations, the single-pack detector assembly was used to scan the North Loading Pit during the CZT scanning campaign. A total of 25 separate locations were scanned to provide maximum coverage of the North Loading Pit, 10 of these locations were found to have fissile material present, 9 of these contained fissile mass > 0.5 grams, none > 5 grams.

The scanned positions are detailed in Table 22. The North Loading Pit is mapped in Figure 30 with the inferred mass locations indicated.

Table 22. The Positions Scanned in the North Loading Pit During the CZT Scanning Campaign Resulting in Inferred Fissile Mass Values > 0.5 grams and Measurement Uncertainties as well as Associated L_C and L_D values.

Filename	Live Time	from North Wall	from East Wall	counts	Inferred Fissile Mass	Measurement Uncertainty	L_C	L_D
(.spc)	(sec)	(ft)	(ft)	(661.67)	(gm)	(gm)	(gm)	(gm)
BS102909	500	1	5	966	2.4	.94	.33	.71
BS102911	500	2	1	810	2.0	.95	.34	.75
BS102921	500	3	5	521	1.3	1.07	.41	.89
BS111305	500	3	6	453	1.1	.97	.34	.82
BS102922	500	4	6	350	.86	.97	.38	.82
BS102910	500	1	6	275	.67	.84	.34	.73
BS102914	500	2	4	264	.65	.72	.29	.63
BS102908	500	1	4	249	.61	.72	.29	.63
BS102905	500	1	1	225	.55	1.08	.37	.80
total					10.14	2.78		

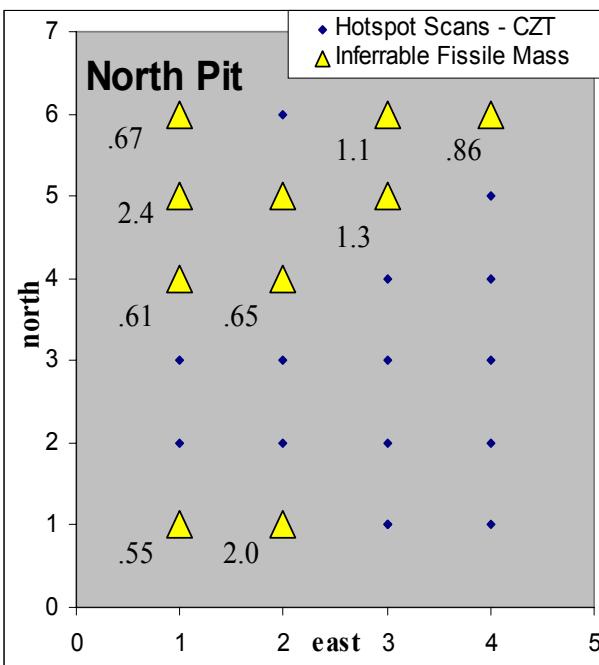


Figure 30. Map of Positions Scanned in the North Loading Pit During the Basin Scanning Campaign. Inferred Fissile Mass Values > 0.5 grams Identified During NaI Scanning Campaign are Indicated.

7.6.3 South Loading Pit

ENGINEERING DESIGN FILE

01/30/2004

Page 53 of 123

Due to crane access limitations, the single-pack detector assembly was used to scan the South Loading Pit during the CZT scanning campaign. A total of 24 separate locations were scanned to provide maximum coverage of the South Loading Pit, 2 of these locations were found to have measurable fissile material, 1 of these contained fissile mass > 0.5 grams, none > 5 grams.

The scanned position is detailed in Table 23. The South Loading Pit is mapped in Figure 31 with the inferred mass location indicated.

Table 23. The Position Scanned in the South Loading Pit During the CZT Scanning Campaign Resulting in Inferred Fissile Mass Value > 0.5 grams and Measurement Uncertainty as well as Associated L_C and L_D values.

Filename	Live Time	from North Wall	from East Wall	counts	Inferred Fissile Mass	Measurement Uncertainty	L_C	L_D
(.spc)	(sec)	(ft)	(ft)	(661.67)	(gm)	(gm)	(gm)	(gm)
BS111409	500	6	2	252	.62	.52	.21	.47
total					.62	.52		

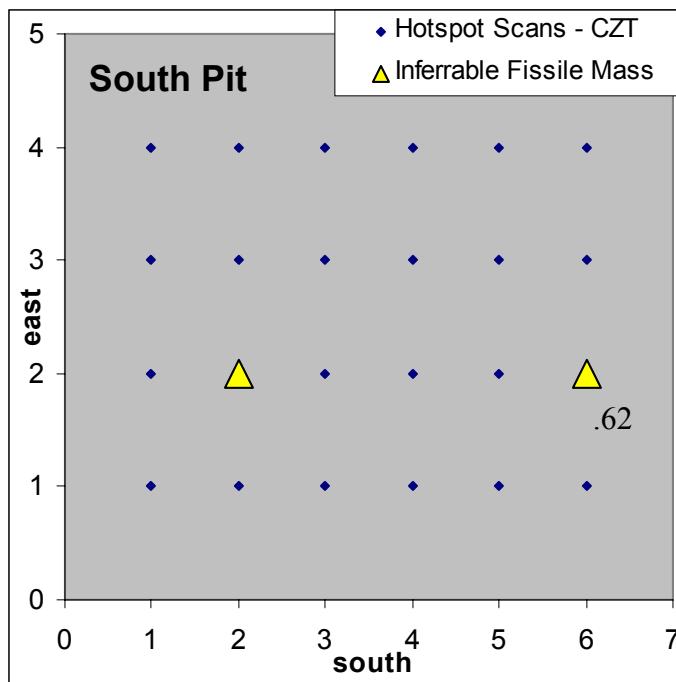


Figure 31. Map of Positions Scanned in the South Loading Pit During the Basin Scanning Campaign. Inferred Fissile Mass Value > 0.5 grams Identified During NaI Scanning Campaign is Indicated.

7.7 Transfer Channel Decking

Due to crane access limitations, the single-pack detector assembly was used to scan the Transfer Channel Decking area during the CZT scanning campaign. A total of 45 separate locations were scanned to provide maximum coverage of the Transfer Channel Decking area, 2 of these locations were found to have

ENGINEERING DESIGN FILE

01/30/2004

Page 54 of 123

measurable fissile material, 1 of these contained fissile mass > 0.5 grams, none >5 grams. The identified hot spot is indicated in Figure 32.

The scanned position is detailed in Table 24. The positions are measured from the wall to the east of the Decking, and from a zero reference point permanently affixed to the structural steel supporting the decking.

Table 24. The Position Scanned in the Transfer Channel Decking Area During the CZT Scanning Campaign Resulting in Inferred Fissile Mass Value >0.5 grams and Measurement Uncertainty as well as Associated L_C and L_D values.

Filename .spc	Live Time (sec)	from North Zero (ft)	from East Wall (ft)	counts (661.67)	Inferred Fissile Mass (gm)	Measurement Uncertainty (gm)	L _C (gm)	L _D (gm)
BS1224ga42	500	7.5	5.9	1003	2.5	1.19	.35	.76
total					2.5	1.19		

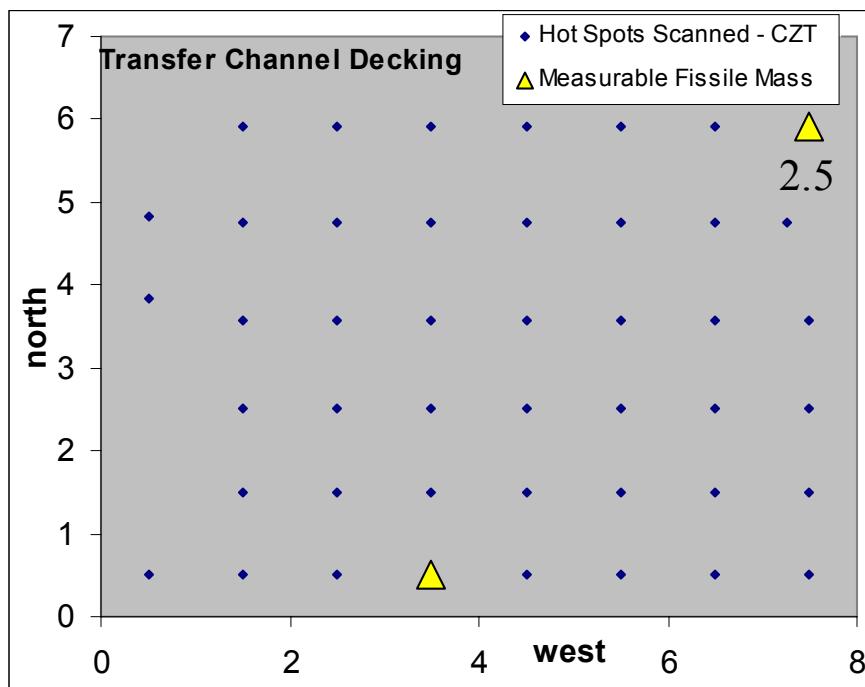


Figure 32. Map of Positions Scanned in the Transfer Channel Decking Area During the Basin Scanning Campaign. Inferred Fissile Mass Value >0.5 grams Identified During NaI Scanning Campaign is Indicated.

ENGINEERING DESIGN FILE

01/30/2004

Page 55 of 123

8 SUMMARY

The purpose of this engineering design file is to provide documentation of the results of measurements of gamma-ray-emitting radionuclide indicators of fissile material in particulate form in the CPP-603 north, middle and south basins and transfer channel and ancillary pools. This was accomplished using Sodium Iodide (NaI) detectors for most scans (93%) and Cadmium-Zinc-Telluride (CZT) detectors to scan the positions where the NaI scan gives inconclusive results. Specific deliverables are to provide a measure of the inventory of fissile material in the basins, to assess the uncertainties associated with these measurements as much as possible, and to provide maps of the distribution of the radionuclide used to determine fissile material content.

The objective of basin scanning was to determine the presence and location of irradiated reactor fuel plates, rods, pellets greater than or equal to 0.5 g fissile (the 0.5g detection capability was necessary to meet the Material Control and Accountability requirements of DOE Order 474.1) that may be located on the floor of the basins and the various transfer areas around the basins in support of further Deactivation, Decontamination & Decommissioning (DD&D) activities.

Results of these measurements with inferred fissile mass loadings listed and tabulated are summarized below in Table 25 for NaI scans and Table 26 for CZT scans.

Figure 33 shows the distribution of mass loadings in all areas scanned in CPP-603 during the Basin Scanning Campaign.

Table 25. Summary of the Total Fissile Mass Inferred in Each Area Scanned During the NaI Scanning Campaign. Totals and Measurement Uncertainties are Computed for All of CPP-603.

Area	Locations Scanned	Number Locations Inferred Fissile Mass >0.5 grams	Number Locations Inferred Fissile Mass > 5 grams	Inferred Fissile Mass (gm)	Measurement Uncertainty (gm)
North Basin	1272	850	0	1154.97	11.85
Middle Basin	1447	1013	11	2002.83	16.94
South Basin	3396	88	5	204.50	12.00
South Basin Unload Pool	321	29	6	134.04	10.80
Transfer Channel	1593	171	4	229.98	7.61
Channel to Pits + Pits	114	5	0	8.19	1.97
total	8143	2156	26	3734.51	27.38

ENGINEERING DESIGN FILE

01/30/2004

Page 56 of 123

Table 26. Summary of the Total Fissile Mass Inferred in Each Area Scanned During the CZT Scanning Campaign. Totals and Measurement Uncertainties are Computed for All of CPP-603.

Area	Locations Scanned	Number Locations Inferred Fissile Mass >0.5 grams	Number Locations Inferred Fissile Mass > 5 grams	Inferred Fissile Mass (gm)	Measurement Uncertainty (gm)
North Basin	3	0	0	0	
Middle Basin	39	1	0	1.11	.60
South Basin	270	6	1	49.9	7.42
South Basin Unload Pool	54	9	0	13.6	2.47
Transfer Channel	87	0	0	0	
Channel to Pits	57	1	0	1.3	.50
North Pit	25	9	0	10.1	2.78
South Pit	24	1	0	.62	.52
Transfer Channel Decking	45	1	0	2.5	1.19
total	604	28	1	79.13	8.44

The NaI and CZT data represent subsets of the basin floor source term. The NaI survey data are the values collected from the majority of the floor area. The CZT values are those from spectra acquired from locations where activity was too great to yield a conclusive result with the NaI detector. In conclusion, the sum of the two survey data sets is the uranium source term that can be inferred from Cesium-137 activity.

Results of these measurements indicate that total inferred particulate fissile material in the various basins, channels, and pools in CPP-603 measured by the NaI detector is 3734.51 ± 27.38 grams with a 95% confidence level, and that measured by the CZT detector is 79.13 ± 8.44 grams with a 95% confidence level, a total of 3813.64 ± 28.65 grams.

ENGINEERING DESIGN FILE

01/30/2004

Page 57 of 123

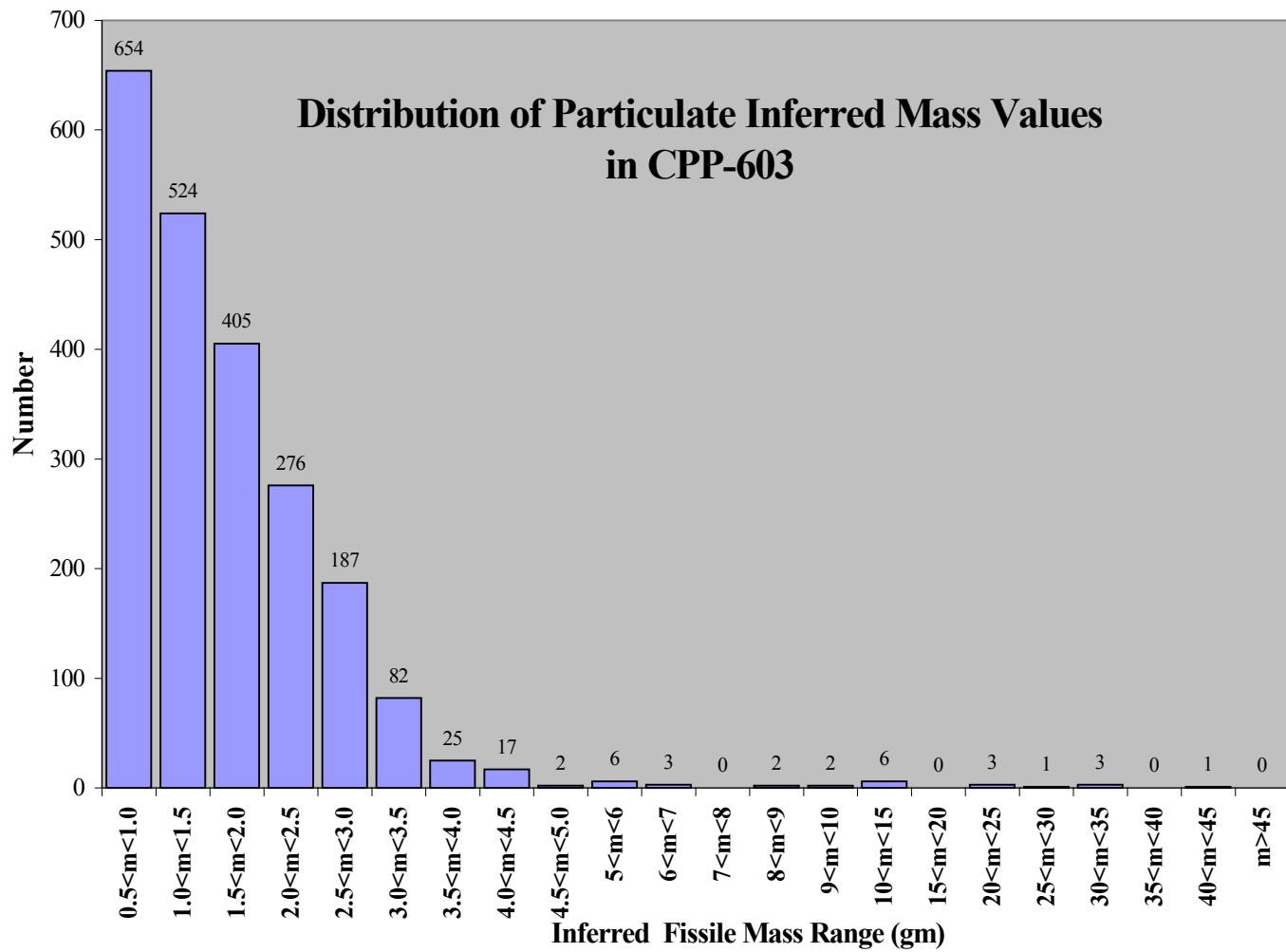


Figure 33 Distribution of Particulate Mass Loadings for All Areas Scanned in CPP-603 During the Basin Scanning Campaign

ENGINEERING DESIGN FILE

01/30/2004

Page 58 of 123

9 TABULATION OF MASS LOADING - NaI

9.1 North Basin

Table 27. A Complete Tabulation of Fissile Mass Values Inferred During the NaI Scanning Campaign in the North Basin. Locations, Measurement Uncertainties and L_C and L_D Values are Also Listed.

Filename	Livetime (sec)	from	from	Inferred	error (gm)	L _C (gm)	L _D (gm)
		West Wall (ft)	North Wall (ft)	Fissile Mass (gm)			
09-04-241.spc	60	6.0	28.2	3.79	0.83	0.21	0.39
09-04-256.spc	60	21.0	28.2	3.65	0.80	0.21	0.38
09-04-262.spc	60	26.9	28.2	3.58	0.79	0.21	0.37
08-31-080.spc	60	1.4	55.9	3.53	0.80	0.24	0.42
09-05-156.spc	60	24.6	18.3	3.46	0.75	0.16	0.30
09-04-199.spc	60	6.0	30.1	3.23	0.73	0.22	0.42
09-04-259.spc	60	24.0	28.2	3.20	0.71	0.19	0.36
09-05-155.spc	60	25.6	18.5	3.16	0.78	0.28	0.53
09-05-076.spc	60	26.0	22.2	3.06	0.69	0.20	0.37
09-05-146.spc	60	16.7	18.5	3.05	0.73	0.25	0.47
09-04-238.spc	60	3.0	28.2	3.05	0.69	0.21	0.40
09-05-191.spc	60	23.1	16.6	3.00	0.75	0.27	0.51
09-04-205.spc	60	8.9	30.1	2.99	0.68	0.21	0.39
09-05-023.spc	60	18.7	24.4	2.90	0.69	0.24	0.43
09-05-011.spc	60	6.9	24.3	2.89	0.88	0.38	0.76
09-04-265.spc	60	29.9	28.3	2.88	0.65	0.19	0.35
09-05-080.spc	60	27.9	22.5	2.87	0.69	0.24	0.44
09-05-184.spc	60	18.1	16.7	2.83	0.65	0.20	0.39
09-04-217.spc	60	20.8	30.2	2.81	0.63	0.19	0.35
09-05-119.spc	60	25.4	20.5	2.81	0.71	0.26	0.50
09-05-152.spc	60	22.6	18.5	2.80	0.71	0.26	0.50
09-05-008.spc	60	4.0	24.3	2.78	0.88	0.39	0.79
09-05-162.spc	60	30.6	18.3	2.78	0.62	0.16	0.31
09-04-244.spc	60	9.0	28.2	2.77	0.63	0.20	0.37
08-31-367.spc	60	6.4	39.9	2.75	0.64	0.22	0.43
09-05-195.spc	60	25.1	16.3	2.73	0.61	0.16	0.32
09-04-250.spc	60	15.0	28.2	2.69	0.61	0.18	0.34
09-04-163.spc	60	12.0	32.1	2.67	0.61	0.19	0.37
09-05-134.spc	60	4.8	18.4	2.67	0.72	0.29	0.56
09-04-122.spc	60	12.0	34.3	2.66	0.63	0.24	0.45

ENGINEERING DESIGN FILE

01/30/2004

Page 59 of 123

09-04-160.spc	60	9.0	32.1	2.65	0.60	0.18	0.34
09-05-185.spc	60	17.2	16.5	2.65	0.69	0.27	0.52
09-04-223.spc	60	26.8	30.2	2.65	0.62	0.20	0.39
09-05-116.spc	60	22.4	20.5	2.64	0.67	0.25	0.48
09-04-208.spc	60	11.9	30.1	2.62	0.62	0.21	0.40
09-05-141.spc	60	9.8	18.3	2.62	0.58	0.15	0.29
09-04-058.spc	60	33.7	38.4	2.61	0.61	0.20	0.40
09-04-296.spc	60	3.1	26.3	2.60	0.64	0.26	0.49
09-04-247.spc	60	12.0	28.2	2.60	0.60	0.19	0.37
09-05-138.spc	60	6.8	18.2	2.57	0.58	0.16	0.32
08-31-388.spc	60	30.1	40.1	2.57	0.60	0.20	0.39
09-05-159.spc	60	27.6	18.3	2.56	0.58	0.17	0.34
08-31-373.spc	60	12.3	39.9	2.56	0.59	0.20	0.38
08-31-254.spc	60	6.3	46.0	2.53	0.64	0.25	0.48
09-05-194.spc	60	26.1	16.6	2.51	0.68	0.28	0.54
09-05-154.spc	60	26.6	18.7	2.51	0.60	0.21	0.41
09-05-041.spc	60	33.5	24.4	2.49	0.70	0.29	0.58
09-05-161.spc	60	31.5	18.5	2.48	0.70	0.29	0.57
09-05-122.spc	60	28.4	20.5	2.48	0.66	0.26	0.51
08-31-218.spc	60	12.3	48.0	2.48	0.60	0.23	0.42
08-31-239.spc	60	30.2	48.0	2.47	0.63	0.25	0.48
09-04-139.spc	60	30.7	34.2	2.46	0.58	0.20	0.39
09-05-017.spc	60	12.8	24.4	2.46	0.73	0.32	0.64
09-04-178.spc	60	26.9	32.2	2.45	0.57	0.19	0.37
09-05-200.spc	60	32.0	16.6	2.43	0.67	0.28	0.54
08-31-227.spc	60	18.3	48.0	2.43	0.60	0.24	0.45
09-04-046.spc	60	21.9	38.1	2.40	0.58	0.20	0.40
08-31-275.spc	60	27.0	46.1	2.40	0.64	0.27	0.52
09-05-144.spc	60	12.8	18.3	2.39	0.55	0.16	0.32
09-04-200.spc	60	6.9	30.4	2.39	0.58	0.23	0.44
09-05-062.spc	60	13.1	22.4	2.39	0.62	0.24	0.46
09-05-164.spc	60	34.5	18.6	2.38	0.73	0.33	0.65
08-31-385.spc	60	27.1	40.0	2.38	0.57	0.20	0.40
09-04-309.spc	60	11.0	26.1	2.38	0.54	0.15	0.31
09-05-124.spc	60	32.3	20.3	2.38	0.58	0.20	0.40
09-05-005.spc	60	1.0	24.3	2.35	0.86	0.41	0.83
09-04-166.spc	60	15.0	32.1	2.34	0.56	0.20	0.39
09-05-038.spc	60	30.5	24.4	2.34	0.60	0.24	0.45
09-04-308.spc	60	12.0	26.3	2.33	0.57	0.23	0.44
09-05-143.spc	60	13.7	18.5	2.33	0.62	0.25	0.49

ENGINEERING DESIGN FILE

01/30/2004

Page 60 of 123

09-04-196.spc	60	3.0	30.1	2.32	0.60	0.24	0.48
09-05-095.spc	60	1.7	20.3	2.32	0.71	0.31	0.63
09-05-157.spc	60	29.5	18.7	2.32	0.57	0.21	0.42
09-04-310.spc	60	19.8	26.6	2.30	0.52	0.17	0.31
09-05-128.spc	60	34.3	20.5	2.30	0.66	0.28	0.55
09-04-094.spc	60	24.7	36.2	2.29	0.54	0.18	0.35
09-04-056.spc	60	29.8	38.3	2.28	0.57	0.25	0.47
09-05-149.spc	60	19.7	18.5	2.28	0.59	0.23	0.45
09-05-086.spc	60	33.8	22.5	2.27	0.62	0.26	0.51
08-31-281.spc	60	32.9	46.1	2.26	0.63	0.27	0.54
08-31-370.spc	60	9.3	39.9	2.26	0.52	0.18	0.35
08-31-125.spc	60	1.4	51.9	2.26	0.58	0.24	0.46
09-04-125.spc	60	15.0	34.3	2.25	0.54	0.21	0.40
08-31-368.spc	60	7.3	40.1	2.24	0.60	0.25	0.50
09-05-098.spc	60	4.7	20.3	2.24	0.66	0.29	0.58
08-31-377.spc	60	16.2	40.2	2.23	0.56	0.23	0.43
08-31-272.spc	60	24.1	46.1	2.23	0.60	0.26	0.50
09-04-307.spc	60	12.9	26.5	2.23	0.53	0.19	0.36
09-05-077.spc	60	25.0	22.4	2.23	0.59	0.24	0.45
09-04-302.spc	60	6.0	26.3	2.23	0.57	0.25	0.48
09-05-083.spc	60	30.9	22.5	2.22	0.59	0.24	0.46
09-04-306.spc	60	8.0	26.1	2.22	0.51	0.16	0.32
08-31-361.spc	60	1.1	39.1	2.22	0.56	0.22	0.45
09-05-029.spc	60	24.6	24.4	2.20	0.59	0.24	0.46
09-04-274.spc	60	32.9	28.2	2.20	0.55	0.20	0.41
BS050803.spc	60	2.7	51.7	2.19	0.52	0.17	0.33
08-31-391.spc	60	33.1	40.0	2.18	0.55	0.22	0.45
09-04-143.spc	60	33.1	34.4	2.18	0.54	0.23	0.44
09-04-026.spc	60	3.1	38.2	2.17	0.56	0.25	0.49
09-04-221.spc	60	24.8	30.4	2.17	0.54	0.23	0.45
09-13-315.spc	60	15.2	0.5	2.16	0.50	0.17	0.34
09-04-320.spc	60	24.8	26.4	2.15	0.53	0.22	0.42
08-31-371.spc	60	10.3	40.1	2.15	0.58	0.25	0.49
09-04-254.spc	60	18.9	28.4	2.14	0.53	0.22	0.42
09-05-050.spc	60	4.2	22.3	2.14	0.63	0.28	0.55
09-05-101.spc	60	7.7	20.4	2.13	0.60	0.25	0.50
09-05-131.spc	60	1.8	18.4	2.11	0.71	0.33	0.68
09-04-071.spc	60	1.3	36.3	2.11	0.60	0.29	0.59
09-05-110.spc	60	16.5	20.4	2.10	0.58	0.24	0.48
09-04-157.spc	60	6.0	32.1	2.10	0.50	0.18	0.35

ENGINEERING DESIGN FILE

01/30/2004

Page 61 of 123

09-04-116.spc	60	6.1	34.3	2.09	0.52	0.23	0.44
09-05-115.spc	60	23.4	20.4	2.08	0.50	0.18	0.35
09-04-253.spc	60	17.9	28.4	2.08	0.47	0.16	0.29
09-04-260.spc	60	24.9	28.4	2.06	0.51	0.21	0.41
09-04-239.spc	60	4.0	28.4	2.06	0.52	0.23	0.44
09-05-160.spc	60	32.5	18.7	2.05	0.55	0.22	0.45
08-31-224.spc	60	15.3	48.0	2.02	0.53	0.23	0.44
09-05-064.spc	60	17.1	22.2	2.02	0.47	0.16	0.31
09-13-329.spc	60	7.8	0.5	2.02	0.56	0.25	0.50
09-04-304.spc	60	9.9	26.5	2.01	0.48	0.17	0.34
09-04-037.spc	60	16.0	38.0	2.00	0.50	0.19	0.38
09-04-128.spc	60	17.9	34.4	2.00	0.49	0.21	0.39
09-05-188.spc	60	20.1	16.5	1.98	0.59	0.26	0.52
09-04-257.spc	60	21.9	28.4	1.98	0.50	0.22	0.42
09-05-099.spc	60	3.7	20.2	1.97	0.48	0.16	0.34
09-05-158.spc	60	28.5	18.5	1.97	0.63	0.29	0.58
09-04-055.spc	60	30.8	38.1	1.96	0.49	0.19	0.38
08-29-010.spc	60	1.8	56.4	1.95	0.45	0.15	0.27
08-31-376.spc	60	15.3	40.0	1.95	0.48	0.19	0.38
09-04-211.spc	60	14.9	30.2	1.95	0.48	0.18	0.37
09-04-242.spc	60	7.0	28.4	1.95	0.49	0.22	0.42
09-04-154.spc	60	3.1	32.1	1.94	0.48	0.18	0.37
09-04-329.spc	60	33.7	26.4	1.94	0.53	0.25	0.50
09-05-189.spc	60	19.1	16.4	1.93	0.45	0.14	0.29
09-04-312.spc	60	17.9	26.1	1.92	0.44	0.13	0.27
09-05-019.spc	60	16.7	24.6	1.92	0.48	0.18	0.36
08-31-311.spc	60	23.9	44.1	1.91	0.49	0.20	0.39
08-31-260.spc	60	12.2	46.0	1.90	0.53	0.24	0.47
09-05-142.spc	60	14.7	18.7	1.90	0.46	0.17	0.33
08-31-251.spc	60	3.3	46.0	1.90	0.56	0.26	0.53
09-04-315.spc	60	20.8	26.2	1.89	0.43	0.13	0.27
08-31-266.spc	60	18.1	46.0	1.89	0.56	0.26	0.53
09-05-059.spc	60	10.1	22.4	1.88	0.54	0.24	0.47
09-04-305.spc	60	9.0	26.3	1.88	0.49	0.23	0.45
09-05-049.spc	60	5.2	22.2	1.88	0.47	0.18	0.36
09-04-034.spc	60	13.0	38.0	1.88	0.48	0.19	0.38
BS050805.spc	60	3.3	44.2	1.87	0.45	0.16	0.32
09-05-024.spc	60	17.7	24.2	1.87	0.43	0.14	0.28
09-05-151.spc	60	23.6	18.4	1.87	0.46	0.18	0.35
09-04-089.spc	60	17.9	36.3	1.86	0.47	0.21	0.41

ENGINEERING DESIGN FILE

01/30/2004

Page 62 of 123

08-31-386.spc	60	28.1	40.2	1.86	0.55	0.25	0.51
09-13-323.spc	60	11.2	0.5	1.85	0.50	0.23	0.44
09-04-249.spc	60	14.0	28.6	1.85	0.42	0.13	0.26
09-04-245.spc	60	10.0	28.4	1.84	0.45	0.19	0.35
08-31-209.spc	60	6.3	48.0	1.82	0.53	0.24	0.49
09-04-301.spc	60	7.0	26.3	1.81	0.45	0.18	0.36
09-04-209.spc	60	12.9	30.4	1.81	0.49	0.24	0.47
09-05-135.spc	60	3.8	18.2	1.81	0.46	0.17	0.35
09-04-176.spc	60	24.9	32.4	1.80	0.46	0.21	0.40
09-04-248.spc	60	13.0	28.4	1.80	0.46	0.20	0.39
09-05-065.spc	60	16.1	22.4	1.80	0.51	0.22	0.43
09-04-322.spc	60	28.8	26.6	1.80	0.45	0.18	0.36
09-05-004.spc	60	2.0	24.2	1.80	0.54	0.24	0.50
09-05-020.spc	60	15.7	24.4	1.79	0.59	0.28	0.56
09-04-029.spc	60	6.1	38.2	1.77	0.47	0.22	0.44
09-04-083.spc	60	11.9	36.3	1.77	0.47	0.22	0.42
09-13-312.spc	60	16.8	0.5	1.76	0.41	0.14	0.29
09-04-050.spc	60	23.9	38.3	1.76	0.48	0.23	0.47
09-05-061.spc	60	14.1	22.2	1.76	0.45	0.17	0.35
09-04-161.spc	60	10.0	32.3	1.76	0.45	0.20	0.40
09-04-311.spc	60	18.8	26.4	1.76	0.45	0.21	0.41
09-04-068.spc	60	1.1	36.3	1.76	0.58	0.32	0.65
08-31-230.spc	60	21.3	48.0	1.75	0.48	0.21	0.41
08-31-392.spc	60	34.0	40.2	1.75	0.54	0.25	0.51
09-05-125.spc	60	31.4	20.5	1.75	0.59	0.28	0.56
08-31-352.spc	60	32.9	41.9	1.75	0.42	0.16	0.32
BS050812.spc	60	2.1	32.1	1.75	0.43	0.16	0.32
09-05-166.spc	60	3.3	16.3	1.75	0.61	0.30	0.63
09-05-167.spc	60	2.3	16.4	1.75	0.86	0.44	0.92
09-05-097.spc	60	5.7	20.5	1.75	0.45	0.18	0.36
09-05-165.spc	60	33.5	18.7	1.75	0.46	0.18	0.37
09-04-092.spc	60	20.8	36.3	1.75	0.46	0.21	0.42
09-05-203.spc	60	34.9	16.6	1.74	0.56	0.26	0.53
09-04-077.spc	60	6.0	36.3	1.73	0.46	0.22	0.43
09-05-133.spc	60	5.8	18.6	1.72	0.46	0.19	0.39
08-31-235.spc	60	28.2	48.0	1.72	0.43	0.17	0.35
08-31-284.spc	60	35.5	46.0	1.72	0.51	0.23	0.47
09-05-193.spc	60	27.1	16.8	1.71	0.47	0.20	0.40
09-13-321.spc	60	11.8	0.5	1.71	0.40	0.14	0.29
09-04-121.spc	60	13.0	34.3	1.71	0.43	0.17	0.34

ENGINEERING DESIGN FILE

01/30/2004

Page 63 of 123

09-04-210.spc	60	13.9	30.6	1.71	0.40	0.14	0.28
09-04-104.spc	60	32.6	36.4	1.71	0.49	0.25	0.50
08-31-343.spc	60	24.0	41.9	1.71	0.43	0.17	0.35
09-05-113.spc	60	19.4	20.5	1.70	0.52	0.24	0.48
09-05-007.spc	60	5.0	24.5	1.70	0.54	0.25	0.52
09-05-014.spc	60	9.9	24.3	1.70	0.67	0.33	0.68
09-05-190.spc	60	24.1	16.6	1.70	0.43	0.17	0.34
08-31-263.spc	60	15.2	46.0	1.70	0.50	0.23	0.47
09-04-173.spc	60	21.9	32.4	1.70	0.43	0.20	0.38
09-04-181.spc	60	29.8	32.3	1.70	0.42	0.16	0.32
08-31-276.spc	60	26.1	45.9	1.69	0.39	0.13	0.28
09-04-175.spc	60	23.9	32.4	1.69	0.42	0.17	0.33
09-13-340.spc	60	2.6	0.5	1.68	0.54	0.26	0.55
08-31-232.spc	60	25.2	47.9	1.68	0.40	0.15	0.30
09-04-124.spc	60	16.0	34.3	1.68	0.41	0.16	0.31
09-04-172.spc	60	20.9	32.2	1.68	0.43	0.17	0.35
08-31-350.spc	60	30.9	42.1	1.67	0.50	0.24	0.47
08-31-365.spc	60	4.4	40.1	1.67	0.53	0.26	0.52
09-04-142.spc	60	34.1	34.5	1.67	0.42	0.16	0.33
09-05-030.spc	60	23.6	24.3	1.67	0.39	0.13	0.27
08-31-349.spc	60	30.0	41.9	1.66	0.43	0.18	0.37
09-04-201.spc	60	7.9	30.6	1.66	0.39	0.14	0.28
08-31-278.spc	60	30.0	46.1	1.66	0.53	0.26	0.52
09-04-295.spc	60	4.1	26.2	1.65	0.45	0.19	0.40
09-05-069.spc	60	18.1	22.2	1.65	0.39	0.13	0.27
09-04-206.spc	60	9.9	30.4	1.65	0.43	0.20	0.40
09-05-035.spc	60	27.6	24.4	1.65	0.49	0.22	0.44
09-05-140.spc	60	10.8	18.4	1.65	0.57	0.27	0.55
09-05-129.spc	60	33.3	20.3	1.65	0.41	0.15	0.31
09-04-230.spc	60	33.8	30.4	1.64	0.47	0.23	0.47
09-05-074.spc	60	22.1	22.4	1.64	0.48	0.21	0.42
09-13-285.spc	60	26.8	0.5	1.64	0.41	0.16	0.35
08-31-310.spc	60	24.9	43.9	1.64	0.41	0.16	0.33
BS050804.spc	60	2.3	44.2	1.64	0.41	0.16	0.32
09-05-018.spc	60	11.8	24.4	1.63	0.42	0.16	0.34
09-13-320.spc	60	12.8	0.5	1.63	0.45	0.21	0.42
09-05-053.spc	60	7.2	22.3	1.63	0.53	0.25	0.51
09-05-204.spc	60	34.0	17.0	1.63	0.38	0.13	0.26
08-31-257.spc	60	9.3	46.0	1.63	0.52	0.26	0.52
08-31-271.spc	60	25.1	46.2	1.62	0.42	0.18	0.36

ENGINEERING DESIGN FILE

01/30/2004

Page 64 of 123

09-04-261.spc	60	25.9	28.6	1.62	0.38	0.13	0.26
09-13-276.spc	60	31.5	0.5	1.62	0.42	0.17	0.37
09-04-113.spc	60	3.1	34.3	1.62	0.47	0.24	0.49
09-04-324.spc	60	26.8	26.2	1.62	0.39	0.14	0.29
09-04-170.spc	60	18.9	32.4	1.62	0.42	0.20	0.38
08-31-364.spc	60	3.4	39.9	1.61	0.41	0.17	0.35
09-13-282.spc	60	28.2	0.5	1.61	0.40	0.16	0.34
09-04-137.spc	60	26.8	34.4	1.61	0.44	0.21	0.43
08-31-332.spc	60	10.2	42.1	1.61	0.45	0.20	0.40
BS050809.spc	60	6.2	42.3	1.61	0.47	0.21	0.44
09-04-327.spc	60	29.8	26.2	1.60	0.38	0.13	0.28
09-04-319.spc	60	25.8	26.6	1.60	0.41	0.17	0.34
08-31-285.spc	60	34.5	45.9	1.60	0.38	0.15	0.31
09-04-243.spc	60	8.0	28.6	1.60	0.38	0.13	0.27
08-31-076.spc	60	1.7	55.4	1.60	0.38	0.15	0.29
09-04-011.spc	60	0.6	38.3	1.59	0.48	0.25	0.51
09-04-131.spc	60	20.9	34.4	1.59	0.43	0.21	0.42
08-31-194.spc	60	30.1	50.0	1.59	0.40	0.17	0.31
08-31-382.spc	60	21.2	40.0	1.59	0.41	0.18	0.37
09-05-139.spc	60	11.8	18.6	1.58	0.43	0.18	0.37
08-31-265.spc	60	19.1	46.2	1.58	0.41	0.17	0.35
09-04-041.spc	60	18.0	38.3	1.58	0.45	0.23	0.46
08-31-338.spc	60	16.1	42.1	1.57	0.44	0.20	0.41
09-05-197.spc	60	29.1	16.6	1.57	0.54	0.26	0.53
09-04-207.spc	60	10.9	30.6	1.57	0.38	0.14	0.28
09-04-086.spc	60	14.9	36.3	1.57	0.45	0.23	0.46
09-05-112.spc	60	20.4	20.3	1.57	0.40	0.16	0.32
09-04-097.spc	60	27.7	36.2	1.57	0.41	0.17	0.35
09-05-036.spc	60	26.6	24.4	1.57	0.36	0.12	0.24
09-05-104.spc	60	10.7	20.4	1.57	0.53	0.25	0.52
08-31-389.spc	60	31.1	40.2	1.56	0.53	0.27	0.54
08-31-346.spc	60	27.0	41.9	1.56	0.39	0.16	0.33
09-04-185.spc	60	33.8	32.4	1.56	0.42	0.21	0.41
08-31-302.spc	60	18.0	44.1	1.56	0.45	0.21	0.41
09-04-129.spc	60	16.9	34.3	1.56	0.37	0.13	0.27
09-05-121.spc	60	29.4	20.5	1.56	0.42	0.17	0.36
08-31-320.spc	60	32.8	44.1	1.56	0.47	0.22	0.45
09-04-047.spc	60	20.9	38.3	1.56	0.45	0.23	0.46
09-05-126.spc	60	30.4	20.7	1.55	0.39	0.14	0.30
08-31-269.spc	60	21.1	46.0	1.55	0.52	0.26	0.53

ENGINEERING DESIGN FILE

01/30/2004

Page 65 of 123

09-05-068.spc	60	19.1	22.4	1.55	0.47	0.22	0.43
09-04-010.spc	60	0.9	37.3	1.55	0.50	0.24	0.50
09-05-027.spc	60	20.7	24.2	1.55	0.37	0.13	0.26
09-05-136.spc	60	8.8	18.6	1.55	0.42	0.17	0.36
BS050811.spc	60	8.1	42.3	1.55	0.44	0.19	0.39
09-13-302.spc	60	19.5	0.5	1.54	0.44	0.21	0.43
08-31-329.spc	60	4.3	42.1	1.54	0.53	0.27	0.55
09-04-074.spc	60	3.0	36.3	1.54	0.54	0.30	0.62
09-05-012.spc	60	5.9	24.1	1.54	0.43	0.18	0.39
09-04-053.spc	60	26.8	38.3	1.54	0.46	0.24	0.49
09-04-119.spc	60	9.1	34.3	1.54	0.43	0.21	0.43
09-04-073.spc	60	4.0	36.1	1.53	0.44	0.20	0.42
09-04-098.spc	60	26.7	36.3	1.53	0.43	0.21	0.43
09-13-334.spc	60	5.5	0.5	1.53	0.42	0.19	0.39
08-31-353.spc	60	33.9	42.1	1.53	0.43	0.20	0.40
08-31-279.spc	60	29.0	46.0	1.52	0.36	0.13	0.28
09-05-047.spc	60	1.3	22.3	1.52	0.57	0.28	0.57
09-13-311.spc	60	17.8	0.5	1.52	0.46	0.23	0.47
09-04-038.spc	60	15.0	38.3	1.52	0.44	0.22	0.45
09-04-090.spc	60	16.9	36.2	1.52	0.38	0.14	0.29
09-13-326.spc	60	9.5	0.5	1.52	0.50	0.26	0.54
09-13-279.spc	60	29.8	0.5	1.52	0.40	0.17	0.37
09-04-240.spc	60	5.0	28.6	1.52	0.36	0.13	0.27
09-05-100.spc	60	8.7	20.5	1.51	0.40	0.17	0.34
09-13-281.spc	60	29.2	0.5	1.51	0.53	0.28	0.58
09-04-263.spc	60	27.9	28.4	1.51	0.43	0.21	0.43
08-31-236.spc	60	27.2	48.1	1.51	0.47	0.23	0.46
08-31-337.spc	60	15.1	41.9	1.50	0.36	0.14	0.28
08-31-280.spc	60	33.9	46.2	1.50	0.40	0.18	0.37
09-05-289.spc	60	37.1	36.0	1.50	0.36	0.14	0.27
BS050814.spc	60	2.1	28.2	1.50	0.41	0.17	0.36
09-04-323.spc	60	27.8	26.4	1.49	0.43	0.22	0.45
09-04-215.spc	60	18.9	30.4	1.49	0.41	0.21	0.41
09-05-192.spc	60	22.1	16.5	1.49	0.36	0.13	0.27
09-04-258.spc	60	22.9	28.6	1.48	0.36	0.13	0.27
09-04-179.spc	60	27.9	32.4	1.48	0.40	0.19	0.39
08-31-383.spc	60	22.2	40.2	1.48	0.46	0.23	0.46
09-05-082.spc	60	31.9	22.4	1.48	0.40	0.17	0.34
09-05-046.spc	60	2.3	22.4	1.48	0.42	0.18	0.39
09-04-321.spc	60	23.8	26.2	1.48	0.36	0.13	0.27

ENGINEERING DESIGN FILE

01/30/2004

Page 66 of 123

09-05-145.spc	60	17.7	18.6	1.47	0.40	0.17	0.35
08-31-344.spc	60	25.0	42.1	1.47	0.45	0.22	0.44
09-05-123.spc	60	27.4	20.5	1.47	0.35	0.12	0.26
09-04-164.spc	60	13.0	32.4	1.46	0.42	0.21	0.43
09-04-266.spc	60	30.9	28.4	1.46	0.41	0.20	0.41
08-31-316.spc	60	30.8	43.9	1.46	0.38	0.16	0.33
BS050808.spc	60	2.3	39.9	1.46	0.42	0.19	0.39
09-04-065.spc	60	1.3	36.3	1.46	0.53	0.30	0.62
08-31-331.spc	60	9.2	41.9	1.46	0.36	0.15	0.30
09-04-162.spc	60	11.0	32.6	1.46	0.36	0.13	0.27
09-04-095.spc	60	23.8	36.4	1.46	0.42	0.22	0.44
09-04-255.spc	60	19.9	28.4	1.46	0.34	0.11	0.24
BS050821.spc	60	23.0	42.2	1.46	0.37	0.15	0.30
08-31-308.spc	60	21.0	44.1	1.45	0.43	0.21	0.42
08-31-347.spc	60	28.0	42.1	1.45	0.44	0.21	0.42
09-04-317.spc	60	24.8	26.4	1.45	0.43	0.22	0.45
09-04-028.spc	60	7.1	38.1	1.45	0.39	0.17	0.36
09-05-399.spc	60	36.1	14.5	1.44	0.34	0.12	0.25
BS050806.spc	60	4.3	44.2	1.44	0.39	0.16	0.33
09-05-199.spc	60	33.0	16.6	1.44	0.39	0.17	0.35
09-05-022.spc	60	19.7	24.6	1.43	0.39	0.17	0.35
08-31-374.spc	60	13.3	40.2	1.43	0.46	0.23	0.46
09-04-330.spc	60	32.7	26.2	1.43	0.38	0.15	0.32
09-05-417.spc	60	36.1	10.8	1.43	0.37	0.14	0.30
09-04-252.spc	60	16.9	28.6	1.42	0.34	0.12	0.26
09-04-227.spc	60	30.8	30.4	1.42	0.42	0.22	0.44
09-05-021.spc	60	14.8	24.2	1.42	0.39	0.16	0.35
09-05-326.spc	60	36.5	28.5	1.42	0.47	0.22	0.46
09-04-184.spc	60	32.8	32.4	1.42	0.39	0.17	0.35
09-04-025.spc	60	4.1	38.2	1.41	0.41	0.19	0.40
09-04-059.spc	60	32.7	38.3	1.41	0.41	0.21	0.42
09-04-133.spc	60	24.8	34.4	1.41	0.37	0.16	0.33
09-04-167.spc	60	15.9	32.4	1.40	0.39	0.20	0.39
09-04-136.spc	60	27.8	34.2	1.40	0.40	0.18	0.39
09-04-052.spc	60	27.8	38.3	1.40	0.38	0.17	0.35
08-31-233.spc	60	24.2	48.0	1.40	0.44	0.22	0.44
09-04-219.spc	60	22.8	30.6	1.40	0.33	0.12	0.24
08-31-379.spc	60	18.2	40.0	1.40	0.39	0.18	0.37
09-04-226.spc	60	29.8	30.4	1.39	0.37	0.16	0.32
08-31-314.spc	60	26.9	44.1	1.39	0.40	0.19	0.38

ENGINEERING DESIGN FILE

01/30/2004

Page 67 of 123

09-04-035.spc	60	12.0	38.3	1.39	0.42	0.22	0.45
09-05-081.spc	60	26.9	22.3	1.39	0.34	0.13	0.27
09-05-009.spc	60	3.0	24.1	1.39	0.42	0.19	0.41
09-05-109.spc	60	17.5	20.5	1.39	0.37	0.16	0.32
09-04-326.spc	60	30.7	26.4	1.38	0.41	0.21	0.43
08-31-335.spc	60	13.2	42.1	1.38	0.43	0.21	0.42
08-31-282.spc	60	31.9	45.9	1.38	0.34	0.13	0.29
08-31-228.spc	60	17.3	47.9	1.38	0.32	0.11	0.24
09-04-224.spc	60	27.8	30.4	1.38	0.40	0.21	0.42
09-04-141.spc	60	28.2	34.7	1.38	0.34	0.13	0.28
08-31-296.spc	60	12.1	44.0	1.38	0.45	0.22	0.46
09-04-134.spc	60	23.8	34.4	1.38	0.41	0.21	0.43
09-05-118.spc	60	26.4	20.5	1.37	0.38	0.17	0.34
09-04-214.spc	60	17.9	30.5	1.37	0.34	0.14	0.29
09-13-278.spc	60	30.8	0.5	1.37	0.53	0.29	0.60
09-13-299.spc	60	21.2	0.5	1.36	0.43	0.22	0.45
09-04-212.spc	60	15.9	30.4	1.36	0.38	0.19	0.38
09-05-405.spc	60	36.1	13.0	1.36	0.32	0.11	0.24
09-04-067.spc	60	1.4	35.8	1.35	0.44	0.22	0.46
09-05-106.spc	60	14.6	20.5	1.35	0.37	0.16	0.33
09-05-396.spc	60	36.1	14.5	1.35	0.34	0.13	0.27
09-04-158.spc	60	7.0	32.3	1.35	0.38	0.20	0.39
09-05-198.spc	60	28.1	16.7	1.35	0.35	0.14	0.29
09-13-269.spc	60	35.8	0.5	1.34	0.64	0.36	0.76
09-04-148.spc	60	0.9	31.4	1.34	0.42	0.21	0.43
BS050813.spc	60	2.1	30.1	1.34	0.37	0.16	0.33
09-13-290.spc	60	24.5	0.5	1.34	0.40	0.20	0.41
09-13-338.spc	60	2.7	0.5	1.34	0.48	0.26	0.53
08-31-262.spc	60	16.2	46.2	1.34	0.35	0.16	0.32
09-04-101.spc	60	29.7	36.4	1.34	0.36	0.18	0.35
08-31-073.spc	60	2.0	55.4	1.33	0.32	0.13	0.26
09-05-120.spc	60	24.4	20.4	1.33	0.33	0.13	0.27
09-13-283.spc	60	28.8	0.5	1.33	0.38	0.18	0.37
08-31-151.spc	60	27.6	52.2	1.33	0.34	0.14	0.30
09-04-091.spc	60	21.8	36.3	1.33	0.36	0.16	0.32
09-04-218.spc	60	21.8	30.4	1.33	0.38	0.19	0.39
08-30-018.spc	60	34.9	57.5	1.33	0.30	0.10	0.19
08-31-380.spc	60	19.2	40.2	1.33	0.47	0.24	0.49
09-04-103.spc	60	33.6	36.3	1.33	0.38	0.17	0.36
09-05-107.spc	60	13.6	20.4	1.32	0.51	0.25	0.52

ENGINEERING DESIGN FILE

01/30/2004

Page 68 of 123

09-05-280.spc	60	37.1	38.2	1.32	0.36	0.16	0.32
08-31-267.spc	60	17.1	45.9	1.32	0.32	0.12	0.26
08-31-299.spc	60	15.1	44.1	1.32	0.43	0.22	0.44
09-04-313.spc	60	22.8	26.6	1.32	0.37	0.17	0.35
09-04-316.spc	60	25.8	26.6	1.32	0.37	0.16	0.34
09-04-079.spc	60	10.0	36.3	1.31	0.33	0.13	0.27
09-04-049.spc	60	24.9	38.2	1.31	0.39	0.18	0.38
09-05-337.spc	60	37.1	24.8	1.31	0.35	0.15	0.31
08-31-305.spc	60	18.0	44.1	1.31	0.41	0.21	0.42
08-31-229.spc	60	22.3	48.1	1.31	0.33	0.14	0.29
09-05-111.spc	60	15.5	20.4	1.30	0.32	0.12	0.25
09-05-187.spc	60	21.1	16.7	1.30	0.38	0.17	0.37
09-13-284.spc	60	27.8	0.5	1.30	0.46	0.25	0.52
09-05-058.spc	60	11.1	22.3	1.29	0.37	0.16	0.34
08-31-118.spc	60	34.2	53.6	1.29	0.31	0.12	0.24
08-31-341.spc	60	19.1	42.1	1.29	0.39	0.19	0.39
09-05-358.spc	60	37.2	19.7	1.29	0.36	0.16	0.34
08-31-362.spc	60	1.0	40.1	1.29	0.48	0.25	0.52
09-05-010.spc	60	7.9	24.5	1.28	0.49	0.25	0.53
08-31-212.spc	60	9.3	48.0	1.28	0.40	0.20	0.41
08-31-317.spc	60	29.9	44.1	1.28	0.38	0.18	0.36
09-04-165.spc	60	13.9	32.6	1.28	0.32	0.12	0.26
09-04-264.spc	60	28.9	28.6	1.27	0.31	0.12	0.25
09-05-078.spc	60	24.0	22.7	1.27	0.31	0.12	0.25
08-31-375.spc	60	14.2	40.4	1.27	0.31	0.12	0.27
09-04-297.spc	60	2.1	26.4	1.27	0.34	0.14	0.31
09-05-182.spc	60	14.2	16.5	1.26	0.43	0.21	0.43
09-04-155.spc	60	4.0	32.3	1.25	0.38	0.20	0.41
09-04-194.spc	60	0.6	30.3	1.25	0.43	0.24	0.50
09-13-317.spc	60	14.5	0.5	1.25	0.41	0.21	0.44
09-05-387.spc	60	36.0	16.7	1.25	0.32	0.13	0.27
09-04-085.spc	60	15.9	36.3	1.25	0.35	0.16	0.33
09-05-025.spc	60	22.6	24.6	1.25	0.35	0.15	0.32
09-04-169.spc	60	17.9	32.5	1.25	0.33	0.15	0.30
09-04-229.spc	60	32.8	30.3	1.24	0.38	0.18	0.38
08-31-245.spc	60	34.8	48.0	1.24	0.33	0.15	0.30
09-04-100.spc	60	30.7	36.4	1.24	0.36	0.16	0.35
09-04-118.spc	60	10.1	34.3	1.24	0.34	0.15	0.31
08-31-366.spc	60	5.4	40.4	1.24	0.32	0.14	0.30
08-31-243.spc	60	32.2	48.1	1.24	0.30	0.12	0.25

ENGINEERING DESIGN FILE

01/30/2004

Page 69 of 123

08-31-369.spc	60	8.3	40.4	1.24	0.30	0.12	0.27
08-31-287.spc	60	0.7	44.1	1.24	0.49	0.26	0.55
09-05-292.spc	60	37.1	35.3	1.24	0.32	0.14	0.28
09-04-123.spc	60	11.0	34.4	1.23	0.31	0.12	0.27
09-05-088.spc	60	36.8	22.6	1.23	0.35	0.16	0.33
09-04-076.spc	60	7.0	36.3	1.23	0.34	0.15	0.32
09-05-063.spc	60	12.1	22.5	1.23	0.31	0.11	0.25
09-04-251.spc	60	16.0	28.4	1.23	0.37	0.20	0.40
08-31-223.spc	60	16.3	48.0	1.23	0.33	0.15	0.31
09-04-140.spc	60	29.7	34.4	1.23	0.40	0.22	0.46
09-04-032.spc	60	9.1	38.2	1.23	0.38	0.20	0.41
09-05-034.spc	60	28.6	24.5	1.23	0.33	0.14	0.29
09-04-220.spc	60	23.8	30.3	1.23	0.35	0.16	0.34
09-05-016.spc	60	13.8	24.3	1.22	0.42	0.21	0.44
09-05-352.spc	60	37.1	20.4	1.22	0.36	0.16	0.34
09-05-039.spc	60	29.5	24.4	1.22	0.30	0.11	0.23
08-31-274.spc	60	28.0	46.3	1.21	0.36	0.18	0.38
BS050817.spc	60	16.0	26.3	1.21	0.36	0.16	0.34
09-04-064.spc	60	1.3	35.3	1.21	0.44	0.22	0.48
09-05-052.spc	60	8.2	22.4	1.21	0.35	0.16	0.34
09-05-103.spc	60	11.7	20.4	1.21	0.36	0.16	0.34
09-05-148.spc	60	20.7	18.7	1.21	0.34	0.15	0.32
09-04-149.spc	60	0.6	32.3	1.20	0.41	0.23	0.48
08-31-253.spc	60	7.3	46.1	1.20	0.34	0.16	0.35
09-04-318.spc	60	23.8	26.2	1.20	0.31	0.13	0.28
09-13-296.spc	60	22.8	0.5	1.20	0.39	0.21	0.42
BS050810.spc	60	7.1	42.3	1.20	0.40	0.19	0.41
08-30-030.spc	60	31.8	56.9	1.20	0.27	0.09	0.18
09-04-080.spc	60	9.0	36.3	1.19	0.38	0.21	0.43
08-31-387.spc	60	29.1	40.4	1.19	0.29	0.12	0.25
09-05-085.spc	60	34.8	22.3	1.19	0.37	0.17	0.37
09-13-318.spc	60	13.5	0.5	1.19	0.29	0.12	0.25
09-04-225.spc	60	28.8	30.6	1.19	0.31	0.12	0.27
08-31-328.spc	60	3.3	41.9	1.19	0.36	0.18	0.38
09-05-054.spc	60	6.2	22.3	1.18	0.32	0.13	0.29
09-04-246.spc	60	11.0	28.6	1.18	0.29	0.11	0.24
09-04-182.spc	60	30.8	32.4	1.18	0.38	0.21	0.42
09-05-348.spc	60	36.0	24.3	1.18	0.32	0.14	0.30
BS050815.spc	60	14.0	26.3	1.18	0.38	0.18	0.38
09-04-108.spc	60	34.6	36.3	1.17	0.28	0.10	0.22

ENGINEERING DESIGN FILE

01/30/2004

Page 70 of 123

08-31-293.spc	60	9.1	44.1	1.17	0.43	0.23	0.47
09-04-168.spc	60	16.9	32.6	1.17	0.30	0.12	0.26
09-05-040.spc	60	34.5	24.4	1.17	0.37	0.18	0.38
09-04-314.spc	60	21.8	26.4	1.17	0.38	0.21	0.43
09-05-079.spc	60	28.9	22.6	1.17	0.33	0.15	0.32
09-04-112.spc	60	4.1	34.3	1.17	0.35	0.17	0.35
09-13-328.spc	60	8.8	0.5	1.16	0.35	0.17	0.36
08-31-200.spc	60	35.1	50.0	1.16	0.35	0.17	0.35
09-05-153.spc	60	21.6	18.6	1.16	0.30	0.12	0.26
09-04-066.spc	60	1.3	37.3	1.16	0.37	0.18	0.39
09-05-067.spc	60	20.1	22.6	1.16	0.31	0.13	0.28
09-04-126.spc	60	14.0	34.3	1.16	0.29	0.11	0.24
09-04-328.spc	60	34.7	26.6	1.16	0.37	0.18	0.38
09-05-037.spc	60	31.5	24.4	1.15	0.35	0.16	0.35
08-31-351.spc	60	31.9	42.4	1.15	0.28	0.11	0.24
08-31-273.spc	60	23.1	46.0	1.15	0.30	0.13	0.28
08-31-277.spc	60	31.0	46.1	1.15	0.35	0.18	0.38
09-13-332.spc	60	6.2	0.5	1.15	0.44	0.24	0.50
08-31-255.spc	60	5.3	45.9	1.15	0.29	0.12	0.27
09-05-409.spc	60	37.3	9.9	1.15	0.33	0.15	0.33
08-31-261.spc	60	11.3	45.8	1.14	0.28	0.11	0.24
09-05-172.spc	60	6.3	16.5	1.14	0.46	0.24	0.51
09-13-288.spc	60	25.2	0.5	1.14	0.30	0.13	0.29
09-04-087.spc	60	13.9	36.3	1.14	0.29	0.11	0.25
09-05-168.spc	60	1.3	16.6	1.14	0.48	0.24	0.53
09-05-147.spc	60	15.7	18.4	1.14	0.31	0.13	0.28
09-04-115.spc	60	7.1	34.3	1.13	0.33	0.16	0.33
09-05-044.spc	60	35.5	24.4	1.13	0.51	0.26	0.55
09-04-147.spc	60	34.7	34.3	1.13	0.29	0.12	0.26
09-05-073.spc	60	23.1	22.5	1.13	0.31	0.14	0.29
09-13-337.spc	60	3.7	0.5	1.12	0.40	0.21	0.45
09-05-369.spc	60	36.0	19.1	1.12	0.30	0.12	0.27
08-31-119.spc	60	33.4	54.2	1.11	0.30	0.14	0.27
09-05-051.spc	60	3.2	22.4	1.11	0.31	0.13	0.29
09-05-096.spc	60	0.7	20.4	1.11	0.33	0.14	0.32
09-04-197.spc	60	4.0	30.3	1.11	0.39	0.22	0.47
09-05-102.spc	60	6.7	20.2	1.11	0.31	0.13	0.29
09-04-088.spc	60	18.8	36.4	1.11	0.31	0.14	0.30
09-05-415.spc	60	37.3	9.1	1.11	0.36	0.17	0.37
08-30-033.spc	60	31.0	57.1	1.10	0.26	0.09	0.19

ENGINEERING DESIGN FILE

01/30/2004

Page 71 of 123

09-04-159.spc	60	8.0	32.6	1.10	0.29	0.12	0.26
08-30-016.spc	60	32.1	56.4	1.10	0.26	0.10	0.19
09-05-196.spc	60	30.1	16.4	1.10	0.35	0.17	0.36
09-05-170.spc	60	2.3	16.4	1.10	0.59	0.31	0.65
09-05-013.spc	60	10.9	24.3	1.09	0.41	0.21	0.45
09-13-280.spc	60	30.2	0.5	1.09	0.35	0.17	0.37
09-05-015.spc	60	8.9	24.4	1.09	0.36	0.17	0.37
09-04-042.spc	60	17.0	38.1	1.09	0.30	0.13	0.28
08-31-256.spc	60	10.3	46.0	1.08	0.31	0.15	0.32
BS050816.spc	60	15.0	26.3	1.08	0.35	0.16	0.35
09-05-108.spc	60	12.6	20.3	1.08	0.30	0.13	0.28
09-05-066.spc	60	15.1	22.6	1.07	0.28	0.11	0.25
09-05-201.spc	60	31.0	16.5	1.07	0.30	0.13	0.28
09-05-060.spc	60	9.1	22.4	1.07	0.28	0.12	0.25
09-04-130.spc	60	21.9	34.4	1.06	0.31	0.15	0.31
09-05-174.spc	60	4.3	16.4	1.06	0.40	0.20	0.43
09-05-282.spc	60	36.0	39.9	1.06	0.30	0.13	0.29
09-13-401.spc	60	35.5	12.2	1.06	0.40	0.22	0.46
09-13-358.spc	60	36.5	4.7	1.06	0.41	0.22	0.47
08-31-307.spc	60	22.0	44.1	1.06	0.28	0.13	0.27
08-30-023.spc	60	31.5	56.8	1.06	0.28	0.13	0.24
09-04-325.spc	60	31.7	26.6	1.06	0.34	0.17	0.36
09-05-028.spc	60	25.6	24.5	1.05	0.32	0.15	0.32
09-04-232.spc	60	34.4	30.6	1.05	0.31	0.15	0.32
09-05-087.spc	60	32.9	22.7	1.05	0.30	0.13	0.28
09-04-082.spc	60	12.9	36.3	1.05	0.33	0.16	0.35
08-31-191.spc	60	27.1	50.0	1.05	0.31	0.16	0.32
BS050823.spc	60	25.0	40.4	1.05	0.36	0.17	0.38
09-04-171.spc	60	19.9	32.3	1.04	0.27	0.11	0.23
09-05-084.spc	60	29.9	22.5	1.04	0.27	0.11	0.24
BS050807.spc	60	2.3	41.9	1.04	0.35	0.17	0.37
08-31-208.spc	60	7.3	47.9	1.04	0.30	0.14	0.31
08-31-215.spc	60	12.3	48.0	1.04	0.41	0.22	0.46
09-13-291.spc	60	23.5	0.5	1.04	0.28	0.13	0.29
08-31-238.spc	60	31.2	48.1	1.03	0.30	0.15	0.32
09-05-223.spc	60	37.1	50.6	1.03	0.28	0.13	0.27
09-04-027.spc	60	2.1	38.2	1.03	0.29	0.13	0.28
08-31-306.spc	60	17.1	43.9	1.02	0.25	0.11	0.23
09-05-295.spc	60	37.0	34.2	1.02	0.29	0.13	0.28
08-31-394.spc	60	34.0	40.0	1.02	0.30	0.15	0.31

ENGINEERING DESIGN FILE

01/30/2004

Page 72 of 123

09-04-198.spc	60	4.9	30.6	1.02	0.29	0.13	0.29
09-05-114.spc	60	18.5	20.6	1.02	0.28	0.12	0.27
09-05-359.spc	60	36.6	20.5	1.02	0.38	0.19	0.40
09-05-090.spc	60	34.8	22.3	1.01	0.30	0.13	0.29
08-31-206.spc	60	3.3	48.0	1.01	0.43	0.23	0.49
08-31-259.spc	60	13.2	46.2	1.01	0.31	0.15	0.33
08-30-024.spc	60	33.4	57.6	1.01	0.23	0.08	0.18
09-05-286.spc	60	37.1	36.7	1.01	0.29	0.13	0.28
09-05-277.spc	60	37.1	39.0	1.01	0.34	0.17	0.36
09-05-117.spc	60	21.4	20.6	1.01	0.27	0.12	0.26
09-13-287.spc	60	26.2	0.5	1.00	0.36	0.20	0.41
09-04-060.spc	60	31.7	38.3	1.00	0.28	0.12	0.27
09-05-354.spc	60	36.0	22.1	1.00	0.30	0.14	0.31
09-04-105.spc	60	31.7	36.5	1.00	0.27	0.12	0.26
08-31-390.spc	60	32.1	40.3	1.00	0.28	0.13	0.30
09-05-026.spc	60	21.6	24.4	0.99	0.44	0.23	0.48
09-04-051.spc	60	22.9	38.4	0.99	0.27	0.12	0.26
09-04-145.spc	60	36.7	34.5	0.98	0.27	0.13	0.27
08-31-323.spc	60	35.4	44.1	0.98	0.33	0.18	0.36
09-04-180.spc	60	28.8	32.6	0.98	0.26	0.11	0.25
08-31-292.spc	60	10.1	44.0	0.97	0.29	0.14	0.31
09-05-181.spc	60	15.2	16.7	0.97	0.31	0.15	0.32
09-05-252.spc	60	36.0	46.5	0.97	0.28	0.12	0.27
09-04-036.spc	60	11.1	38.5	0.97	0.27	0.12	0.26
09-04-061.spc	60	36.7	38.3	0.97	0.32	0.16	0.35
09-05-075.spc	60	21.1	22.4	0.96	0.25	0.10	0.23
09-04-127.spc	60	18.9	34.4	0.96	0.30	0.15	0.32
09-04-236.spc	60	0.6	28.3	0.96	0.41	0.24	0.51
09-04-156.spc	60	5.0	32.6	0.96	0.26	0.12	0.26
09-05-127.spc	60	35.3	20.6	0.96	0.32	0.16	0.34
09-05-361.spc	60	37.1	19.0	0.96	0.31	0.15	0.32
09-05-353.spc	60	36.6	21.3	0.95	0.38	0.19	0.41
09-04-303.spc	60	5.0	26.3	0.95	0.28	0.13	0.29
08-31-242.spc	60	33.2	48.0	0.95	0.33	0.17	0.36
08-31-157.spc	60	30.5	52.2	0.94	0.27	0.14	0.29
08-31-345.spc	60	26.0	42.3	0.94	0.24	0.10	0.23
09-05-246.spc	60	36.0	47.9	0.94	0.27	0.12	0.26
09-05-274.spc	60	36.9	39.6	0.94	0.34	0.17	0.37
08-31-219.spc	60	11.3	48.1	0.94	0.24	0.11	0.24
09-04-039.spc	60	14.1	38.5	0.94	0.27	0.12	0.28

ENGINEERING DESIGN FILE

01/30/2004

Page 73 of 123

09-05-363.spc	60	36.0	20.6	0.94	0.29	0.13	0.29
09-05-291.spc	60	35.9	37.6	0.93	0.24	0.10	0.22
09-13-335.spc	60	4.5	0.5	0.93	0.41	0.24	0.50
09-04-213.spc	60	16.9	30.6	0.93	0.25	0.11	0.24
09-13-331.spc	60	7.2	0.5	0.93	0.32	0.17	0.36
09-13-345.spc	60	35.0	1.3	0.93	0.24	0.11	0.24
08-31-250.spc	60	4.3	46.1	0.93	0.32	0.17	0.37
09-05-340.spc	60	37.1	24.0	0.93	0.32	0.16	0.34
08-31-268.spc	60	22.1	46.1	0.93	0.31	0.16	0.35
08-31-330.spc	60	5.3	42.3	0.92	0.25	0.12	0.26
09-05-150.spc	60	18.7	18.3	0.92	0.26	0.12	0.26
09-05-179.spc	60	11.2	16.5	0.92	0.39	0.21	0.43
08-30-010.spc	60	33.6	56.6	0.92	0.23	0.10	0.20
08-31-334.spc	60	12.2	42.1	0.92	0.28	0.14	0.31
08-30-021.spc	60	34.1	57.6	0.92	0.22	0.08	0.18
09-04-174.spc	60	22.9	32.6	0.92	0.25	0.11	0.24
08-31-340.spc	60	18.1	42.1	0.92	0.26	0.13	0.28
09-04-114.spc	60	2.1	34.2	0.92	0.29	0.14	0.31
08-30-054.spc	60	25.8	57.1	0.91	0.21	0.07	0.15
09-04-120.spc	60	8.1	34.4	0.91	0.25	0.11	0.25
09-05-163.spc	60	35.5	18.4	0.91	0.32	0.17	0.36
08-31-240.spc	60	29.2	47.9	0.91	0.24	0.11	0.25
09-04-030.spc	60	5.1	38.4	0.91	0.28	0.13	0.30
08-31-319.spc	60	33.8	43.9	0.91	0.28	0.14	0.30
09-05-283.spc	60	37.1	37.5	0.91	0.29	0.14	0.30
08-31-226.spc	60	19.3	48.1	0.91	0.28	0.14	0.31
08-31-304.spc	60	19.0	44.2	0.91	0.26	0.13	0.28
09-05-364.spc	60	37.2	18.3	0.91	0.30	0.15	0.32
09-05-343.spc	60	37.1	23.3	0.90	0.32	0.16	0.35
09-13-406.spc	60	36.5	13.8	0.90	0.28	0.14	0.31
09-05-217.spc	60	37.1	52.1	0.89	0.24	0.11	0.24
09-04-289.spc	60	0.7	25.3	0.89	0.33	0.17	0.38
BS050819.spc	60	21.0	42.2	0.89	0.29	0.14	0.31
09-13-394.spc	60	36.5	10.5	0.89	0.27	0.14	0.29
09-04-033.spc	60	8.1	38.5	0.89	0.28	0.14	0.30
08-31-211.spc	60	10.3	48.0	0.89	0.26	0.13	0.29
08-31-137.spc	60	13.6	51.9	0.89	0.29	0.15	0.32
09-05-094.spc	60	2.7	20.3	0.89	0.38	0.20	0.43
09-05-171.spc	60	1.3	16.6	0.88	0.32	0.16	0.35
09-05-089.spc	60	35.8	22.4	0.88	0.38	0.20	0.43

ENGINEERING DESIGN FILE

01/30/2004

Page 74 of 123

09-13-303.spc	60	18.5	0.5	0.88	0.24	0.11	0.25
08-31-167.spc	60	3.2	50.0	0.88	0.42	0.24	0.50
08-31-290.spc	60	6.2	44.1	0.88	0.43	0.24	0.50
08-31-372.spc	60	11.3	40.4	0.87	0.26	0.13	0.30
09-13-348.spc	60	35.0	2.2	0.87	0.24	0.11	0.24
08-31-205.spc	60	4.3	48.0	0.87	0.27	0.14	0.30
09-05-331.spc	60	37.1	26.2	0.86	0.35	0.18	0.40
09-04-132.spc	60	19.9	34.3	0.86	0.23	0.10	0.23
09-05-105.spc	60	9.7	20.4	0.86	0.26	0.12	0.26
08-31-231.spc	60	20.3	48.0	0.86	0.22	0.10	0.23
09-04-275.spc	60	33.8	28.4	0.86	0.36	0.22	0.46
08-31-234.spc	60	23.2	48.2	0.85	0.22	0.10	0.21
09-05-308.spc	60	36.5	32.2	0.85	0.34	0.18	0.38
08-30-036.spc	60	30.3	57.2	0.85	0.21	0.08	0.19
09-05-349.spc	60	37.2	21.9	0.85	0.30	0.16	0.34
08-31-237.spc	60	26.2	48.1	0.84	0.21	0.09	0.21
09-05-255.spc	60	36.0	45.8	0.84	0.24	0.11	0.25
08-31-214.spc	60	13.3	48.0	0.84	0.28	0.15	0.33
09-04-277.spc	60	34.5	28.5	0.84	0.26	0.13	0.28
08-31-104.spc	60	18.5	53.9	0.84	0.28	0.15	0.31
08-30-022.spc	60	30.6	56.4	0.83	0.23	0.10	0.22
09-04-144.spc	60	32.1	34.3	0.83	0.26	0.12	0.27
09-05-169.spc	60	3.3	16.3	0.83	0.36	0.19	0.41
09-05-346.spc	60	37.1	22.6	0.83	0.29	0.15	0.33
09-05-220.spc	60	37.1	51.4	0.83	0.26	0.13	0.28
08-31-270.spc	60	20.1	46.0	0.83	0.23	0.11	0.26
08-31-258.spc	60	8.3	46.1	0.83	0.23	0.12	0.26
08-30-047.spc	60	26.4	56.7	0.82	0.25	0.13	0.26
09-04-062.spc	60	35.7	38.3	0.82	0.33	0.20	0.42
09-05-042.spc	60	32.5	24.4	0.82	0.28	0.13	0.30
08-31-252.spc	60	2.3	46.0	0.81	0.25	0.13	0.29
08-31-059.spc	60	6.6	55.8	0.81	0.23	0.12	0.23
08-31-339.spc	60	17.1	42.3	0.81	0.20	0.09	0.20
09-04-054.spc	60	25.8	38.3	0.81	0.25	0.12	0.27
08-31-355.spc	60	34.5	42.2	0.80	0.24	0.12	0.27
09-04-228.spc	60	31.8	30.5	0.80	0.24	0.11	0.25
09-13-375.spc	60	35.0	1.3	0.80	0.23	0.11	0.25
09-13-322.spc	60	12.2	0.5	0.80	0.28	0.15	0.33
08-31-264.spc	60	14.2	45.8	0.80	0.22	0.11	0.25
09-13-297.spc	60	21.8	0.5	0.80	0.23	0.11	0.26

ENGINEERING DESIGN FILE

01/30/2004

Page 75 of 123

09-04-222.spc	60	25.8	30.5	0.80	0.25	0.12	0.27
08-31-201.spc	60	34.1	50.0	0.79	0.19	0.08	0.18
08-31-384.spc	60	23.2	40.4	0.79	0.22	0.11	0.25
08-30-035.spc	60	29.3	56.8	0.78	0.21	0.11	0.21
09-13-409.spc	60	36.5	14.7	0.78	0.27	0.14	0.32
09-04-177.spc	60	25.9	32.4	0.78	0.23	0.11	0.24
09-05-393.spc	60	36.0	15.2	0.78	0.25	0.12	0.27
08-30-037.spc	60	27.7	56.3	0.78	0.21	0.10	0.21
08-30-029.spc	60	30.8	56.7	0.78	0.25	0.13	0.27
08-31-110.spc	60	24.4	53.9	0.78	0.26	0.14	0.29
08-30-045.spc	60	28.0	57.1	0.77	0.18	0.07	0.16
09-04-099.spc	60	25.7	36.4	0.77	0.24	0.12	0.26
08-31-298.spc	60	16.1	44.1	0.77	0.26	0.14	0.31
09-04-235.spc	60	0.7	27.4	0.77	0.35	0.19	0.42
08-31-210.spc	60	5.3	48.1	0.77	0.20	0.09	0.20
08-31-158.spc	60	31.5	52.0	0.76	0.32	0.18	0.38
08-31-246.spc	60	33.8	47.9	0.76	0.19	0.09	0.20
09-05-265.spc	60	37.0	41.8	0.76	0.28	0.15	0.33
09-04-031.spc	60	10.1	38.0	0.76	0.26	0.14	0.30
09-04-084.spc	60	10.9	36.3	0.75	0.22	0.11	0.24
09-04-070.spc	60	0.7	35.5	0.75	0.39	0.22	0.48
08-31-301.spc	60	19.0	44.2	0.75	0.24	0.13	0.28
09-13-333.spc	60	5.2	0.5	0.75	0.23	0.12	0.27
09-04-138.spc	60	25.3	34.6	0.75	0.24	0.12	0.27
09-04-057.spc	60	28.8	38.6	0.75	0.25	0.12	0.28
BS050820.spc	60	22.0	42.2	0.75	0.27	0.14	0.31
09-04-135.spc	60	22.8	34.3	0.75	0.22	0.10	0.24
09-04-048.spc	60	19.4	38.5	0.74	0.24	0.11	0.26
09-13-400.spc	60	36.5	12.2	0.74	0.27	0.15	0.33
08-31-122.spc	60	35.6	54.1	0.74	0.27	0.15	0.32
08-31-303.spc	60	17.1	43.9	0.74	0.21	0.11	0.24
09-04-187.spc	60	34.6	32.4	0.74	0.24	0.12	0.27
09-13-295.spc	60	23.8	0.5	0.74	0.24	0.13	0.28
08-31-107.spc	60	21.4	53.9	0.73	0.27	0.15	0.31
08-31-336.spc	60	14.2	42.1	0.73	0.20	0.09	0.22
09-05-414.spc	60	36.1	11.5	0.73	0.23	0.11	0.25
08-31-378.spc	60	17.2	40.4	0.73	0.22	0.11	0.26
08-31-313.spc	60	27.9	44.1	0.73	0.23	0.12	0.27
08-30-019.spc	60	31.4	56.5	0.73	0.21	0.10	0.22
08-30-017.spc	60	33.0	56.8	0.73	0.22	0.11	0.23

ENGINEERING DESIGN FILE

01/30/2004

Page 76 of 123

09-13-301.spc	60	20.5	0.5	0.73	0.26	0.14	0.31
09-05-219.spc	60	35.8	53.6	0.72	0.20	0.09	0.20
08-30-082.spc	60	18.7	56.4	0.72	0.18	0.08	0.16
08-31-142.spc	60	18.6	51.7	0.72	0.21	0.11	0.23
09-05-367.spc	60	37.2	17.5	0.72	0.28	0.15	0.32
BS050818.spc	60	16.9	26.3	0.72	0.28	0.15	0.32
09-13-339.spc	60	1.7	0.5	0.72	0.23	0.12	0.28
08-30-039.spc	60	29.5	57.2	0.72	0.18	0.08	0.17
08-31-152.spc	60	28.5	52.0	0.72	0.33	0.18	0.39
08-31-348.spc	60	28.9	42.4	0.72	0.21	0.11	0.25
08-30-013.spc	60	32.9	56.5	0.71	0.20	0.10	0.21
08-31-148.spc	60	24.6	51.7	0.71	0.21	0.11	0.25
08-31-324.spc	60	34.4	44.0	0.71	0.20	0.10	0.22
09-04-109.spc	60	0.6	33.3	0.70	0.33	0.19	0.41
09-13-327.spc	60	8.5	0.5	0.70	0.23	0.12	0.28
09-13-410.spc	60	35.5	14.7	0.70	0.26	0.15	0.32
09-13-385.spc	60	36.5	8.0	0.69	0.21	0.11	0.25
08-30-078.spc	60	22.0	57.1	0.69	0.17	0.07	0.16
08-30-046.spc	60	25.5	56.3	0.69	0.19	0.09	0.21
08-31-327.spc	60	1.0	43.1	0.69	0.24	0.13	0.30
09-05-347.spc	60	36.5	23.4	0.69	0.34	0.18	0.39
08-31-381.spc	60	20.2	40.3	0.69	0.20	0.10	0.23
09-04-276.spc	60	34.8	28.6	0.69	0.19	0.09	0.20
08-30-053.spc	60	24.9	56.7	0.69	0.22	0.12	0.25
09-13-422.spc	60	35.5	17.2	0.69	0.23	0.13	0.28
09-05-177.spc	60	7.2	16.4	0.68	0.33	0.17	0.39
09-04-183.spc	60	31.8	32.5	0.68	0.22	0.11	0.25
08-31-015.spc	60	18.5	56.2	0.68	0.17	0.07	0.17
08-31-295.spc	60	13.1	44.0	0.68	0.26	0.15	0.32
08-31-356.spc	60	35.5	42.1	0.68	0.28	0.16	0.34
08-31-178.spc	60	16.1	50.1	0.68	0.19	0.09	0.21
08-31-294.spc	60	8.1	44.2	0.68	0.20	0.10	0.24
08-31-193.spc	60	31.1	50.0	0.68	0.22	0.12	0.26
BS050824.spc	60	26.0	40.4	0.68	0.32	0.17	0.38
09-04-063.spc	60	34.7	38.3	0.68	0.23	0.12	0.27
09-04-040.spc	60	19.0	38.4	0.67	0.29	0.16	0.36
09-05-412.spc	60	37.3	9.9	0.67	0.28	0.15	0.34
09-05-385.spc	60	37.2	15.0	0.66	0.23	0.12	0.27
09-05-322.spc	60	37.0	28.4	0.66	0.25	0.13	0.30
09-05-370.spc	60	37.1	16.7	0.66	0.25	0.13	0.30

ENGINEERING DESIGN FILE

01/30/2004

Page 77 of 123

08-31-120.spc	60	32.6	54.8	0.66	0.17	0.08	0.18
09-05-006.spc	60	0.0	24.3	0.66	0.31	0.17	0.37
08-31-145.spc	60	21.6	51.7	0.65	0.19	0.10	0.22
09-05-264.spc	60	36.1	44.3	0.65	0.20	0.10	0.22
09-05-279.spc	60	35.9	40.6	0.65	0.23	0.11	0.26
08-31-241.spc	60	34.2	48.0	0.65	0.19	0.10	0.22
09-04-216.spc	60	19.9	30.3	0.65	0.22	0.11	0.25
08-30-057.spc	60	25.0	57.1	0.65	0.16	0.07	0.16
08-31-213.spc	60	8.3	48.1	0.65	0.19	0.10	0.23
08-30-049.spc	60	24.7	56.3	0.65	0.19	0.09	0.20
09-13-395.spc	60	35.5	10.5	0.65	0.27	0.16	0.34
09-13-344.spc	60	35.5	1.3	0.65	0.18	0.10	0.19
08-31-318.spc	60	28.9	44.3	0.64	0.18	0.09	0.21
09-05-235.spc	60	37.0	48.3	0.64	0.23	0.12	0.28
08-31-113.spc	60	27.3	53.9	0.64	0.25	0.14	0.30
08-31-020.spc	60	16.1	55.9	0.64	0.19	0.11	0.22
09-05-259.spc	60	37.0	43.3	0.64	0.22	0.12	0.26
09-05-297.spc	60	36.0	35.9	0.64	0.20	0.10	0.22
09-13-310.spc	60	18.8	0.5	0.64	0.24	0.13	0.29
08-31-053.spc	60	8.1	55.9	0.63	0.20	0.11	0.24
09-05-244.spc	60	37.0	46.2	0.63	0.25	0.13	0.30
08-31-098.spc	60	12.5	53.9	0.63	0.25	0.14	0.31
08-30-051.spc	60	26.5	57.1	0.63	0.16	0.07	0.16
09-04-081.spc	60	8.0	36.3	0.63	0.21	0.11	0.25
08-31-130.spc	60	6.7	51.7	0.63	0.22	0.12	0.28
09-05-328.spc	60	37.1	27.0	0.63	0.31	0.17	0.38
08-31-197.spc	60	33.1	50.0	0.63	0.30	0.17	0.37
09-05-389.spc	60	36.6	15.1	0.62	0.28	0.15	0.32
08-30-071.spc	60	21.8	56.7	0.62	0.18	0.10	0.19
08-31-140.spc	60	16.6	51.9	0.62	0.29	0.16	0.36
09-04-096.spc	60	22.8	36.5	0.62	0.22	0.11	0.26
09-05-390.spc	60	36.0	15.8	0.62	0.21	0.10	0.24
09-05-411.spc	60	36.1	11.5	0.62	0.22	0.11	0.26
08-30-028.spc	60	29.8	56.5	0.62	0.19	0.10	0.22
08-30-062.spc	60	24.1	56.7	0.62	0.20	0.11	0.23
09-04-072.spc	60	1.7	36.6	0.61	0.28	0.15	0.35
09-04-278.spc	60	35.5	28.4	0.61	0.28	0.17	0.37
08-31-225.spc	60	14.3	48.0	0.61	0.20	0.11	0.25
09-05-334.spc	60	37.2	25.5	0.61	0.30	0.16	0.36
09-04-267.spc	60	31.9	28.6	0.61	0.23	0.12	0.27

ENGINEERING DESIGN FILE

01/30/2004

Page 78 of 123

09-05-374.spc	60	36.6	16.8	0.61	0.31	0.17	0.37
09-13-298.spc	60	22.2	0.5	0.61	0.25	0.14	0.32
09-05-045.spc	60	34.5	24.5	0.61	0.25	0.13	0.30
08-31-198.spc	60	32.1	50.0	0.61	0.16	0.08	0.19
09-05-368.spc	60	36.6	18.3	0.61	0.32	0.18	0.38
09-05-266.spc	60	36.5	42.7	0.61	0.30	0.17	0.36
08-31-112.spc	60	28.3	53.7	0.60	0.20	0.11	0.24
08-31-092.spc	60	6.6	53.9	0.60	0.26	0.15	0.32
08-31-217.spc	60	13.3	48.0	0.60	0.25	0.14	0.32
09-05-260.spc	60	36.5	44.2	0.60	0.30	0.16	0.35
08-31-354.spc	60	34.9	42.3	0.60	0.17	0.09	0.21
08-31-139.spc	60	15.6	51.7	0.60	0.19	0.11	0.24
09-05-403.spc	60	37.2	11.4	0.60	0.24	0.13	0.29
08-30-034.spc	60	28.4	56.4	0.60	0.19	0.10	0.22
09-05-288.spc	60	35.9	38.4	0.60	0.24	0.12	0.28
09-13-416.spc	60	35.5	15.5	0.59	0.22	0.13	0.28
09-05-236.spc	60	36.5	49.2	0.59	0.29	0.16	0.35
09-05-247.spc	60	37.0	45.4	0.59	0.25	0.14	0.31
09-05-401.spc	60	36.6	12.9	0.59	0.27	0.15	0.32
08-31-127.spc	60	3.8	51.7	0.59	0.23	0.13	0.29
08-30-076.spc	60	20.2	56.3	0.59	0.16	0.08	0.17
09-13-403.spc	60	36.5	13.0	0.59	0.29	0.17	0.38
08-31-187.spc	60	25.1	50.0	0.59	0.18	0.09	0.21
09-13-421.spc	60	36.5	17.2	0.59	0.20	0.11	0.25
09-05-214.spc	60	37.0	52.8	0.59	0.19	0.10	0.23
09-05-268.spc	60	37.0	41.1	0.59	0.26	0.14	0.32
08-30-031.spc	60	29.1	56.3	0.58	0.17	0.09	0.20
09-05-381.spc	60	37.0	18.5	0.58	0.20	0.10	0.24
09-05-250.spc	60	36.9	44.7	0.58	0.24	0.13	0.29
08-30-087.spc	60	19.8	57.0	0.58	0.15	0.07	0.16
08-30-061.spc	60	23.1	56.4	0.58	0.17	0.09	0.20
08-31-106.spc	60	22.4	54.0	0.58	0.17	0.09	0.21
08-30-092.spc	60	17.4	56.6	0.58	0.18	0.10	0.21
08-31-168.spc	60	2.2	49.9	0.58	0.19	0.10	0.25
08-31-150.spc	60	26.5	52.1	0.58	0.18	0.10	0.23
08-30-064.spc	60	22.4	56.4	0.58	0.17	0.09	0.20
08-31-064.spc	60	4.2	55.4	0.57	0.16	0.09	0.19
09-13-415.spc	60	36.5	15.5	0.57	0.23	0.13	0.29
08-31-023.spc	60	15.4	55.9	0.57	0.18	0.10	0.22
08-31-333.spc	60	11.2	42.3	0.57	0.18	0.10	0.23

ENGINEERING DESIGN FILE

01/30/2004

Page 79 of 123

09-04-294.spc	60	0.6	27.3	0.56	0.24	0.13	0.30
08-30-048.spc	60	27.3	57.1	0.56	0.16	0.07	0.17
09-05-178.spc	60	12.2	16.6	0.56	0.24	0.13	0.30
08-31-297.spc	60	11.1	44.1	0.56	0.17	0.09	0.22
08-31-065.spc	60	5.1	55.8	0.56	0.21	0.12	0.26
09-05-382.spc	60	37.1	15.8	0.56	0.21	0.11	0.26
09-05-270.spc	60	35.9	42.7	0.56	0.18	0.09	0.21
08-31-180.spc	60	14.2	49.8	0.56	0.15	0.08	0.19
09-04-279.spc	60	36.5	28.4	0.56	0.20	0.11	0.25
08-31-016.spc	60	15.9	55.5	0.55	0.15	0.08	0.17
08-31-063.spc	60	6.7	56.3	0.55	0.14	0.06	0.15
09-05-237.spc	60	36.0	50.0	0.55	0.17	0.08	0.20
08-31-022.spc	60	14.4	55.5	0.55	0.15	0.08	0.18
08-31-321.spc	60	31.8	44.3	0.55	0.18	0.10	0.24
08-31-115.spc	60	31.3	53.9	0.55	0.19	0.10	0.24
08-29-013.spc	60	1.4	55.9	0.54	0.19	0.09	0.22
08-31-014.spc	60	17.6	55.9	0.54	0.18	0.10	0.21
09-13-418.spc	60	36.5	16.3	0.54	0.21	0.12	0.27
08-31-312.spc	60	23.0	44.3	0.54	0.17	0.10	0.23
09-05-373.spc	60	37.2	16.1	0.54	0.22	0.12	0.27
08-30-020.spc	60	32.3	56.8	0.53	0.21	0.12	0.26
08-31-101.spc	60	15.5	53.9	0.53	0.25	0.14	0.31
08-30-044.spc	60	27.1	56.7	0.53	0.20	0.11	0.24
09-04-146.spc	60	35.7	34.4	0.53	0.24	0.15	0.33
08-31-393.spc	60	35.0	40.4	0.53	0.17	0.10	0.23
08-30-032.spc	60	30.1	56.7	0.53	0.22	0.13	0.28
09-13-382.spc	60	36.5	7.2	0.53	0.20	0.11	0.26
08-30-015.spc	60	35.6	57.7	0.53	0.17	0.09	0.21
08-31-046.spc	60	8.6	55.5	0.53	0.15	0.08	0.18
08-31-244.spc	60	35.8	48.1	0.52	0.17	0.09	0.21
08-30-043.spc	60	26.2	56.3	0.52	0.18	0.09	0.22
08-31-289.spc	60	7.1	44.0	0.52	0.25	0.15	0.33
08-30-052.spc	60	24.0	56.3	0.52	0.17	0.09	0.21
09-04-078.spc	60	5.0	36.2	0.52	0.24	0.13	0.30
08-30-011.spc	60	34.6	56.7	0.51	0.24	0.13	0.30
08-30-050.spc	60	25.6	56.7	0.51	0.20	0.12	0.25
09-05-267.spc	60	36.0	43.6	0.51	0.18	0.09	0.22
09-05-345.spc	60	36.0	25.0	0.51	0.25	0.13	0.31
09-05-316.spc	60	37.0	29.9	0.50	0.26	0.14	0.33
09-05-249.spc	60	36.0	47.2	0.50	0.20	0.11	0.25

ENGINEERING DESIGN FILE

01/30/2004

Page 80 of 123

09-05-408.spc	60	36.2	12.3	0.50	0.20	0.10	0.25
08-31-123.spc	60	34.6	54.3	0.50	0.13	0.07	0.17

ENGINEERING DESIGN FILE

01/30/2004

Page 81 of 123

9.2 Middle Basin

Table 28. A Complete Tabulation of Fissile Mass Values Inferred During the NaI Scanning Campaign in the Middle Basin. Locations, Measurement Uncertainties and L_C and L_D Values are Also Listed.

Filename	Livetime (sec)	from Row	if S Row North Wall	Inferred from W Wall	Fissile Mass (gm)	Measurement Uncertainty (gm)	L _C (gm)	L _D (gm)
09-11-389.spc	60.00		5.2	44.7	13.13	2.77	0.48	0.80
09-11-266.spc	60.00		30.4	48.8	9.97	2.15	0.49	0.88
09-11-407.spc	60.00		30.1	42.8	8.72	1.89	0.45	0.80
BS050927.spc	30.00	8	3.5	15.0	6.73	1.50	0.42	0.71
BS050931.spc	30.00	8	34.2	15.0	6.19	1.36	0.36	0.58
09-12-287.spc	60.00		30.3	20.9	6.03	1.38	0.43	0.82
09-13-086.spc	60.00		33.8	2.8	5.75	1.29	0.37	0.68
09-11-270.spc	60.00		28.4	49.0	5.54	1.18	0.23	0.42
BS050928.spc	30.00	8	4.5	15.0	5.52	1.25	0.37	0.64
09-12-440.spc	60.00		22.1	14.9	5.39	1.20	0.34	0.62
BS050929.spc	30.00	8	5.5	15.0	5.04	1.18	0.39	0.69
09-13-016.spc	60.00		36.5	3.8	4.71	1.03	0.26	0.47
09-11-358.spc	60.00		28.1	44.6	4.47	0.97	0.23	0.42
09-12-431.spc	60.00		31.0	14.9	4.42	1.02	0.34	0.65
09-12-109.spc	60.00		15.3	28.8	4.33	0.96	0.26	0.48
09-12-520.spc	60.00		31.6	10.6	4.30	0.93	0.22	0.40
09-12-434.spc	60.00		28.1	14.9	4.18	0.96	0.32	0.60
09-12-446.spc	60.00		16.1	14.9	4.17	0.97	0.33	0.62
09-11-356.spc	60.00		32.0	44.7	4.14	0.93	0.29	0.52
09-12-443.spc	60.00		19.1	14.9	4.10	0.97	0.34	0.65
09-11-499.spc	60.00		33.2	38.5	4.07	0.92	0.26	0.50
09-12-439.spc	60.00		21.1	14.7	4.05	0.90	0.25	0.47
09-11-526.spc	60.00		9.6	38.6	3.97	0.86	0.22	0.39
09-12-449.spc	60.00		13.2	14.9	3.87	0.90	0.31	0.58
09-12-428.spc	60.00		36.9	14.8	3.82	0.90	0.32	0.61
09-12-435.spc	60.00		29.0	15.1	3.81	0.83	0.20	0.39
09-11-311.spc	60.00		31.3	46.7	3.79	0.88	0.31	0.58
09-11-355.spc	60.00		31.0	44.5	3.69	0.81	0.22	0.40
09-12-106.spc	60.00		18.3	28.7	3.67	0.83	0.24	0.46
09-12-088.spc	60.00		30.1	28.7	3.65	0.81	0.23	0.42
09-11-263.spc	60.00		33.4	48.8	3.64	0.89	0.35	0.67
09-11-365.spc	60.00		26.1	44.8	3.64	0.82	0.26	0.47

ENGINEERING DESIGN FILE

01/30/2004

Page 82 of 123

09-12-448.spc	60.00		12.2	14.7	3.63	0.83	0.25	0.49
09-12-104.spc	60.00		22.3	28.9	3.60	0.84	0.29	0.54
09-12-432.spc	60.00		32.0	15.0	3.59	0.79	0.21	0.41
09-11-523.spc	60.00		12.5	38.5	3.59	0.79	0.21	0.38
BS050932.spc	30.00	8	35.2	15.0	3.59	0.83	0.28	0.47
09-12-455.spc	60.00		10.2	14.9	3.55	0.85	0.32	0.61
09-12-454.spc	60.00		9.2	14.7	3.53	0.79	0.23	0.45
BS050930.spc	30.00	8	33.2	15.0	3.53	0.88	0.33	0.61
09-13-011.spc	60.00		2.4	6.8	3.48	0.79	0.26	0.47
09-13-079.spc	60.00		36.4	3.7	3.48	0.78	0.23	0.44
09-12-206.spc	60.00		15.9	24.9	3.47	0.77	0.24	0.42
09-12-086.spc	60.00		34.1	28.9	3.45	0.87	0.35	0.69
09-11-520.spc	60.00		15.4	38.5	3.45	0.76	0.21	0.39
09-13-089.spc	60.00		30.8	2.8	3.43	0.85	0.34	0.65
09-11-427.spc	60.00		5.3	42.5	3.41	0.76	0.21	0.40
09-13-109.spc	60.00		12.0	2.6	3.41	0.75	0.20	0.37
09-12-413.spc	60.00		4.0	16.9	3.41	0.78	0.26	0.47
09-12-260.spc	60.00		19.1	23.1	3.40	0.75	0.23	0.41
09-12-307.spc	60.00		13.4	20.7	3.36	0.76	0.23	0.43
09-11-638.spc	60.00		6.5	34.7	3.36	0.76	0.26	0.46
09-12-442.spc	60.00		18.1	14.7	3.35	0.77	0.24	0.47
09-11-416.spc	60.00		18.2	42.8	3.35	0.75	0.24	0.43
09-11-578.spc	60.00		6.6	36.7	3.33	0.82	0.32	0.62
09-11-309.spc	60.00		35.2	46.9	3.32	0.75	0.21	0.43
09-12-400.spc	60.00		11.9	16.7	3.32	0.74	0.21	0.39
BS050939.spc	30.00	2	7.2	3.0	3.29	0.85	0.34	0.64
09-12-089.spc	60.00		31.1	28.9	3.29	0.77	0.27	0.50
09-12-614.spc	60.00		30.7	6.8	3.28	0.76	0.27	0.49
09-11-529.spc	60.00		6.6	38.5	3.27	0.72	0.21	0.38
09-12-557.spc	60.00		3.0	10.8	3.26	0.77	0.28	0.52
09-11-592.spc	60.00		30.0	34.3	3.25	0.74	0.23	0.45
09-12-382.spc	60.00		33.0	16.6	3.24	0.72	0.21	0.40
09-11-569.spc	60.00		12.6	36.8	3.24	0.77	0.28	0.53
09-11-307.spc	60.00		33.3	46.5	3.23	0.74	0.23	0.43
09-12-161.spc	60.00		13.7	26.9	3.23	0.72	0.22	0.39
BS050938.spc	30.00	2	6.2	3.0	3.23	0.87	0.36	0.69
09-11-409.spc	60.00		23.2	42.6	3.23	0.72	0.21	0.38
09-13-119.spc	60.00		4.2	2.7	3.21	0.73	0.25	0.45
09-12-593.spc	60.00		9.6	8.9	3.21	0.76	0.28	0.53
09-13-118.spc	60.00		3.2	2.5	3.20	0.74	0.24	0.46

ENGINEERING DESIGN FILE

01/30/2004

Page 83 of 123

09-13-085.spc	60.00	32.8	2.7	3.20	0.76	0.26	0.51
09-12-101.spc	60.00	25.2	28.9	3.19	0.77	0.29	0.55
09-11-406.spc	60.00	29.1	42.6	3.19	0.74	0.24	0.46
09-12-458.spc	60.00	7.3	14.9	3.18	0.77	0.29	0.56
09-12-430.spc	60.00	30.0	14.7	3.17	0.72	0.23	0.44
09-13-113.spc	60.00	10.1	2.8	3.17	0.73	0.26	0.48
09-11-563.spc	60.00	18.4	36.8	3.16	0.77	0.30	0.59
09-11-568.spc	60.00	11.6	36.5	3.16	0.73	0.24	0.46
09-11-338.spc	60.00	4.7	46.7	3.16	0.72	0.25	0.45
09-12-256.spc	60.00	21.1	22.9	3.15	0.70	0.20	0.37
09-12-437.spc	60.00	25.1	14.9	3.15	0.78	0.31	0.59
09-11-359.spc	60.00	29.1	44.8	3.13	0.74	0.27	0.50
09-12-152.spc	60.00	22.5	26.9	3.12	0.70	0.23	0.40
09-12-595.spc	60.00	5.8	8.7	3.12	0.70	0.21	0.40
09-11-457.spc	60.00	15.9	40.6	3.12	0.69	0.20	0.37
09-12-632.spc	60.00	14.3	6.9	3.12	0.71	0.24	0.43
09-12-107.spc	60.00	19.3	28.9	3.11	0.76	0.30	0.57
09-13-043.spc	60.00	17.2	4.6	3.11	0.69	0.20	0.37
09-12-220.spc	60.00	6.0	24.7	3.10	0.69	0.20	0.38
09-12-462.spc	60.00	2.5	15.0	3.09	0.68	0.18	0.36
09-13-046.spc	60.00	14.3	4.6	3.09	0.69	0.20	0.38
09-11-362.spc	60.00	26.1	44.8	3.08	0.71	0.25	0.47
09-13-040.spc	60.00	20.2	4.6	3.08	0.67	0.18	0.33
09-12-535.spc	60.00	16.8	10.7	3.07	0.67	0.19	0.34
09-12-629.spc	60.00	17.2	6.9	3.07	0.70	0.24	0.42
09-13-020.spc	60.00	36.0	4.8	3.07	0.71	0.25	0.47
09-12-319.spc	60.00	2.8	20.6	3.06	0.69	0.21	0.41
09-12-112.spc	60.00	12.4	28.8	3.05	0.70	0.22	0.43
09-11-415.spc	60.00	17.2	42.5	3.05	0.68	0.20	0.37
09-11-269.spc	60.00	27.4	48.8	3.05	0.77	0.32	0.62
09-11-464.spc	60.00	10.8	40.8	3.04	0.70	0.25	0.46
09-12-500.spc	60.00	4.6	12.8	3.04	0.71	0.25	0.46
09-12-113.spc	60.00	13.4	28.9	3.04	0.75	0.30	0.59
09-11-331.spc	60.00	9.6	46.5	3.03	0.67	0.19	0.36
09-12-482.spc	60.00	22.3	12.9	3.03	0.69	0.23	0.42
09-11-267.spc	60.00	31.4	49.0	3.02	0.69	0.21	0.43
09-11-548.spc	60.00	30.3	36.7	3.01	0.87	0.41	0.83
09-12-436.spc	60.00	24.1	14.7	3.01	0.69	0.22	0.43
09-11-454.spc	60.00	18.9	40.6	3.01	0.68	0.20	0.38
09-12-611.spc	60.00	33.6	6.8	3.00	0.70	0.25	0.46

ENGINEERING DESIGN FILE

01/30/2004

Page 84 of 123

09-11-644.spc	60.00	3.3	34.7	2.99	0.74	0.30	0.57
09-11-367.spc	60.00	22.1	44.6	2.99	0.67	0.20	0.37
09-13-029.spc	60.00	30.1	4.8	2.98	0.67	0.22	0.40
09-11-413.spc	60.00	21.2	42.8	2.98	0.68	0.24	0.44
09-11-337.spc	60.00	3.7	46.5	2.97	0.68	0.21	0.40
09-11-424.spc	60.00	8.3	42.5	2.97	0.66	0.20	0.37
09-12-547.spc	60.00	7.9	10.6	2.96	0.67	0.20	0.38
09-12-023.spc	60.00	19.2	32.9	2.96	0.70	0.26	0.49
09-13-087.spc	60.00	34.8	2.8	2.96	0.65	0.18	0.35
09-11-602.spc	60.00	33.0	34.7	2.96	0.77	0.33	0.65
09-11-388.spc	60.00	4.2	44.5	2.95	0.66	0.19	0.36
09-12-361.spc	60.00	12.3	18.6	2.95	0.66	0.20	0.38
09-11-557.spc	60.00	24.4	36.7	2.95	0.76	0.33	0.64
09-12-488.spc	60.00	16.4	12.9	2.95	0.68	0.24	0.43
09-11-370.spc	60.00	19.1	44.6	2.94	0.66	0.20	0.37
09-11-518.spc	60.00	19.3	38.7	2.94	0.70	0.26	0.49
09-11-575.spc	60.00	9.6	36.7	2.94	0.76	0.32	0.63
09-13-008.spc	60.00	5.3	6.8	2.94	0.69	0.26	0.48
09-12-548.spc	60.00	8.9	10.9	2.93	0.67	0.24	0.43
09-11-386.spc	60.00	8.1	44.7	2.92	0.66	0.22	0.40
09-12-542.spc	60.00	11.9	10.9	2.92	0.67	0.23	0.42
09-13-049.spc	60.00	11.3	4.6	2.92	0.65	0.19	0.35
09-12-136.spc	60.00	30.5	26.7	2.90	0.66	0.20	0.39
09-12-235.spc	60.00	32.2	22.8	2.90	0.65	0.20	0.37
09-13-098.spc	60.00	21.9	2.8	2.90	0.68	0.25	0.45
09-11-382.spc	60.00	10.2	44.5	2.89	0.65	0.19	0.36
09-11-521.spc	60.00	16.4	38.7	2.89	0.67	0.24	0.45
09-12-497.spc	60.00	7.6	12.9	2.89	0.66	0.23	0.43
09-11-408.spc	60.00	31.1	43.0	2.89	0.66	0.20	0.41
09-12-254.spc	60.00	25.1	23.1	2.88	0.66	0.23	0.42
09-13-077.spc	60.00	4.8	4.8	2.88	0.68	0.25	0.47
09-12-551.spc	60.00	5.9	10.9	2.88	0.67	0.24	0.44
09-12-584.spc	60.00	18.5	8.9	2.88	0.66	0.23	0.43
09-11-412.spc	60.00	20.2	42.6	2.87	0.65	0.21	0.40
09-11-577.spc	60.00	5.7	36.6	2.86	0.67	0.23	0.45
09-13-028.spc	60.00	29.1	4.6	2.86	0.63	0.17	0.32
09-12-536.spc	60.00	17.8	10.9	2.84	0.65	0.22	0.40
09-11-509.spc	60.00	25.3	38.7	2.84	0.70	0.28	0.54
09-12-296.spc	60.00	24.3	20.9	2.83	0.74	0.32	0.64
09-11-308.spc	60.00	34.2	46.7	2.83	0.75	0.33	0.65

ENGINEERING DESIGN FILE

01/30/2004

Page 85 of 123

09-12-146.spc	60.00	28.5	26.9	2.83	0.65	0.23	0.42	
09-12-016.spc	60.00	24.1	32.7	2.81	0.63	0.19	0.37	
09-12-572.spc	60.00	30.4	8.8	2.81	0.65	0.23	0.42	
09-11-470.spc	60.00	8.0	40.8	2.80	0.66	0.25	0.47	
09-13-005.spc	60.00	8.3	6.8	2.80	0.66	0.25	0.47	
09-13-002.spc	60.00	11.3	6.9	2.78	0.65	0.24	0.44	
09-13-059.spc	60.00	6.6	4.8	2.78	0.64	0.23	0.43	
09-11-299.spc	60.00	3.8	48.6	2.78	0.65	0.23	0.43	
09-12-290.spc	60.00	30.3	20.9	2.78	0.74	0.33	0.64	
09-11-458.spc	60.00	16.9	40.8	2.78	0.65	0.24	0.44	
09-11-290.spc	60.00	9.5	48.7	2.77	0.63	0.22	0.40	
09-12-368.spc	60.00	7.4	18.9	2.77	0.68	0.27	0.52	
09-11-515.spc	60.00	22.3	38.7	2.77	0.69	0.29	0.56	
09-11-371.spc	60.00	20.1	44.8	2.76	0.64	0.23	0.41	
BS050918.spc	30.00	20	3.7	38.5	2.76	0.75	0.32	0.61
09-12-100.spc	60.00	24.3	28.7	2.75	0.64	0.21	0.42	
09-13-037.spc	60.00	23.2	4.6	2.75	0.60	0.17	0.31	
09-12-631.spc	60.00	13.3	6.7	2.74	0.62	0.20	0.37	
09-13-004.spc	60.00	7.3	6.6	2.74	0.62	0.20	0.38	
09-12-134.spc	60.00	34.4	26.9	2.74	0.72	0.31	0.62	
09-12-385.spc	60.00	29.8	16.8	2.74	0.63	0.20	0.40	
09-11-524.spc	60.00	13.4	38.7	2.74	0.64	0.24	0.45	
09-12-292.spc	60.00	28.2	20.7	2.73	0.65	0.23	0.45	
09-11-283.spc	60.00	11.5	48.6	2.73	0.62	0.19	0.37	
09-12-349.spc	60.00	21.2	18.7	2.73	0.62	0.20	0.39	
09-11-385.spc	60.00	7.2	44.5	2.73	0.61	0.19	0.35	
09-11-310.spc	60.00	30.3	46.6	2.73	0.65	0.23	0.44	
09-13-044.spc	60.00	18.2	4.9	2.73	0.62	0.22	0.39	
09-11-581.spc	60.00	3.7	36.7	2.72	0.64	0.24	0.46	
09-12-590.spc	60.00	12.6	8.9	2.72	0.66	0.26	0.49	
09-12-394.spc	60.00	17.8	16.7	2.72	0.62	0.20	0.38	
09-13-073.spc	60.00	3.8	4.6	2.72	0.62	0.20	0.38	
09-11-383.spc	60.00	11.1	44.8	2.71	0.63	0.22	0.41	
09-12-119.spc	60.00	10.4	28.9	2.71	0.66	0.26	0.49	
09-12-386.spc	60.00	30.8	16.9	2.70	0.66	0.26	0.50	
09-13-025.spc	60.00	32.0	4.6	2.70	0.61	0.19	0.36	
09-12-208.spc	60.00	11.9	24.7	2.70	0.62	0.20	0.39	
09-12-202.spc	60.00	17.8	24.7	2.67	0.61	0.20	0.39	
09-13-065.spc	60.00	0.8	4.5	2.67	0.63	0.24	0.44	
09-12-184.spc	60.00	29.8	24.7	2.66	0.61	0.19	0.37	

ENGINEERING DESIGN FILE

01/30/2004

Page 86 of 123

09-11-410.spc	60.00	24.2	42.8	2.66	0.66	0.27	0.52
09-11-361.spc	60.00	25.1	44.6	2.66	0.61	0.20	0.39
09-12-224.spc	60.00	4.0	24.9	2.65	0.63	0.24	0.45
09-12-371.spc	60.00	4.4	18.9	2.65	0.65	0.26	0.49
09-12-526.spc	60.00	25.7	10.6	2.65	0.61	0.20	0.37
09-11-527.spc	60.00	10.6	38.7	2.64	0.63	0.24	0.46
09-12-185.spc	60.00	30.8	24.9	2.64	0.66	0.27	0.52
09-11-325.spc	60.00	15.5	46.6	2.63	0.59	0.19	0.35
09-12-626.spc	60.00	20.2	6.9	2.63	0.62	0.23	0.42
09-11-368.spc	60.00	23.1	44.8	2.63	0.63	0.25	0.46
09-11-373.spc	60.00	16.1	44.6	2.63	0.60	0.19	0.37
09-11-517.spc	60.00	18.3	38.5	2.63	0.62	0.21	0.42
09-12-077.spc	60.00	4.5	30.9	2.63	0.61	0.22	0.40
09-13-110.spc	60.00	13.0	2.8	2.63	0.64	0.26	0.49
09-12-031.spc	60.00	9.3	32.7	2.63	0.61	0.20	0.39
09-11-334.spc	60.00	6.7	46.6	2.63	0.61	0.21	0.40
09-12-269.spc	60.00	5.4	22.8	2.63	0.61	0.23	0.42
09-12-412.spc	60.00	3.0	16.7	2.62	0.60	0.20	0.38
09-12-019.spc	60.00	21.1	32.7	2.62	0.60	0.19	0.38
09-12-457.spc	60.00	6.3	14.7	2.61	0.62	0.21	0.42
09-12-533.spc	60.00	20.7	10.9	2.61	0.59	0.21	0.37
09-12-263.spc	60.00	11.2	22.8	2.61	0.61	0.23	0.43
09-12-164.spc	60.00	10.8	26.9	2.60	0.60	0.22	0.40
09-12-314.spc	60.00	6.5	20.9	2.60	0.64	0.26	0.49
09-12-479.spc	60.00	25.3	12.9	2.60	0.61	0.23	0.42
09-12-494.spc	60.00	10.5	12.9	2.60	0.60	0.22	0.40
09-12-133.spc	60.00	33.5	26.7	2.60	0.63	0.23	0.45
09-13-052.spc	60.00	8.4	4.6	2.59	0.59	0.19	0.36
09-11-508.spc	60.00	24.3	38.6	2.59	0.62	0.22	0.45
09-12-221.spc	60.00	6.9	24.9	2.59	0.61	0.23	0.43
09-11-364.spc	60.00	25.1	44.6	2.59	0.60	0.20	0.39
09-12-380.spc	60.00	0.8	16.9	2.58	0.69	0.31	0.61
09-12-406.spc	60.00	9.0	16.7	2.58	0.60	0.21	0.41
09-13-041.spc	60.00	21.2	4.8	2.58	0.59	0.21	0.38
09-12-257.spc	60.00	22.1	23.1	2.57	0.62	0.25	0.47
09-11-335.spc	60.00	7.6	46.7	2.57	0.62	0.24	0.46
09-11-431.spc	60.00	3.3	42.7	2.57	0.61	0.24	0.44
09-12-367.spc	60.00	6.4	18.6	2.57	0.60	0.20	0.39
09-12-125.spc	60.00	6.0	28.9	2.57	0.67	0.30	0.58
09-13-107.spc	60.00	16.0	2.8	2.57	0.61	0.23	0.43

ENGINEERING DESIGN FILE

01/30/2004

Page 87 of 123

09-12-370.spc	60.00		3.4	18.6	2.56	0.60	0.20	0.39
09-11-292.spc	60.00		5.6	48.6	2.55	0.58	0.18	0.35
09-11-374.spc	60.00		17.1	44.8	2.55	0.60	0.22	0.41
09-11-421.spc	60.00		11.2	42.5	2.55	0.58	0.19	0.36
09-12-530.spc	60.00		23.7	10.9	2.55	0.60	0.23	0.43
09-11-278.spc	60.00		18.5	48.8	2.55	0.61	0.23	0.43
09-11-286.spc	60.00		11.5	48.5	2.55	0.58	0.18	0.35
09-12-524.spc	60.00		29.6	10.9	2.55	0.61	0.23	0.44
09-13-095.spc	60.00		24.9	2.9	2.55	0.65	0.28	0.54
BS050916.spc	30.00	21	34.2	40.5	2.55	0.64	0.26	0.46
09-12-025.spc	60.00		15.2	32.7	2.55	0.58	0.18	0.34
09-12-532.spc	60.00		19.7	10.7	2.55	0.57	0.18	0.33
09-12-032.spc	60.00		10.3	32.9	2.54	0.60	0.23	0.43
09-12-409.spc	60.00		6.0	16.7	2.54	0.61	0.22	0.44
09-13-076.spc	60.00		3.8	4.6	2.53	0.59	0.20	0.39
BS050934.spc	30.00	9	24.7	17.0	2.53	0.62	0.25	0.44
09-12-407.spc	60.00		10.0	16.9	2.53	0.62	0.25	0.49
09-12-485.spc	60.00		19.3	12.9	2.53	0.59	0.22	0.41
09-12-029.spc	60.00		13.2	32.9	2.52	0.62	0.25	0.48
09-13-001.spc	60.00		10.3	6.7	2.51	0.58	0.19	0.36
09-11-376.spc	60.00		13.1	44.5	2.51	0.58	0.19	0.37
09-12-441.spc	60.00		23.1	15.1	2.51	0.58	0.18	0.37
09-12-095.spc	60.00		28.2	28.9	2.50	0.59	0.22	0.41
09-12-541.spc	60.00		10.9	10.7	2.50	0.57	0.18	0.34
09-12-149.spc	60.00		25.5	26.9	2.50	0.59	0.23	0.42
09-12-444.spc	60.00		20.1	15.1	2.49	0.57	0.18	0.36
09-12-244.spc	60.00		25.7	22.8	2.49	0.55	0.17	0.31
09-12-362.spc	60.00		13.3	18.9	2.49	0.61	0.25	0.47
09-12-568.spc	60.00		32.4	8.7	2.49	0.56	0.18	0.34
09-11-572.spc	60.00		9.6	36.7	2.49	0.67	0.31	0.61
09-13-090.spc	60.00		31.8	3.0	2.49	0.57	0.18	0.37
09-11-589.spc	60.00		33.0	34.3	2.48	0.61	0.23	0.45
09-11-530.spc	60.00		7.6	38.7	2.48	0.61	0.25	0.48
09-11-593.spc	60.00		30.9	34.8	2.48	0.66	0.30	0.59
09-12-218.spc	60.00		9.9	24.9	2.48	0.58	0.22	0.40
09-11-473.spc	60.00		5.0	40.8	2.47	0.62	0.26	0.51
09-12-352.spc	60.00		18.3	18.7	2.47	0.57	0.19	0.37
09-11-551.spc	60.00		27.3	36.8	2.47	0.78	0.39	0.80
09-12-022.spc	60.00		18.2	32.7	2.46	0.58	0.20	0.40
09-12-392.spc	60.00		21.8	16.9	2.46	0.59	0.24	0.45

ENGINEERING DESIGN FILE

01/30/2004

Page 88 of 123

09-12-308.spc	60.00	12.4	20.9	2.46	0.64	0.28	0.55
09-11-264.spc	60.00	34.4	49.0	2.45	0.58	0.20	0.41
09-12-491.spc	60.00	13.5	12.9	2.45	0.59	0.23	0.43
09-12-026.spc	60.00	16.2	32.9	2.45	0.58	0.23	0.42
09-12-259.spc	60.00	18.1	22.9	2.45	0.55	0.18	0.34
09-11-328.spc	60.00	12.5	46.5	2.44	0.57	0.20	0.38
09-12-456.spc	60.00	11.2	15.1	2.44	0.57	0.19	0.39
09-11-574.spc	60.00	8.6	36.6	2.43	0.59	0.22	0.44
09-11-289.spc	60.00	8.5	48.5	2.43	0.55	0.18	0.34
09-12-175.spc	60.00	36.6	23.9	2.43	0.65	0.28	0.57
09-12-241.spc	60.00	28.6	22.7	2.43	0.55	0.18	0.35
09-13-034.spc	60.00	26.1	4.6	2.42	0.56	0.18	0.36
09-12-167.spc	60.00	7.8	26.9	2.42	0.56	0.21	0.38
09-12-200.spc	60.00	21.7	24.9	2.42	0.59	0.24	0.45
09-11-512.spc	60.00	22.3	38.7	2.41	0.64	0.29	0.57
09-11-449.spc	60.00	25.8	40.8	2.41	0.60	0.25	0.49
09-11-566.spc	60.00	15.5	36.8	2.41	0.60	0.25	0.47
09-12-550.spc	60.00	5.0	10.6	2.41	0.56	0.19	0.37
09-12-581.spc	60.00	21.5	8.9	2.41	0.58	0.23	0.44
09-12-583.spc	60.00	17.6	8.7	2.40	0.54	0.17	0.33
09-11-392.spc	60.00	2.2	44.7	2.40	0.56	0.21	0.39
09-11-562.spc	60.00	17.4	36.5	2.40	0.57	0.20	0.40
09-11-287.spc	60.00	12.5	48.7	2.39	0.58	0.23	0.43
09-11-629.spc	60.00	15.4	34.8	2.39	0.62	0.27	0.52
09-12-059.spc	60.00	22.3	30.9	2.39	0.62	0.27	0.54
09-12-305.spc	60.00	15.4	20.9	2.39	0.59	0.24	0.46
09-13-082.spc	60.00	35.7	2.7	2.39	0.56	0.19	0.37
09-12-587.spc	60.00	15.6	8.9	2.38	0.57	0.22	0.42
09-11-460.spc	60.00	12.9	40.6	2.37	0.56	0.19	0.38
09-11-467.spc	60.00	11.0	40.8	2.37	0.59	0.25	0.48
09-12-074.spc	60.00	7.5	30.9	2.37	0.58	0.23	0.44
09-12-010.spc	60.00	30.0	32.8	2.37	0.56	0.20	0.39
09-12-046.spc	60.00	33.1	30.7	2.37	0.57	0.21	0.41
09-12-253.spc	60.00	24.1	22.9	2.37	0.55	0.19	0.37
09-11-596.spc	60.00	28.0	34.8	2.36	0.61	0.27	0.53
09-12-484.spc	60.00	18.4	12.7	2.36	0.55	0.18	0.35
09-12-158.spc	60.00	16.7	26.9	2.36	0.56	0.22	0.40
09-12-203.spc	60.00	18.8	24.9	2.35	0.56	0.22	0.42
09-12-358.spc	60.00	15.3	18.7	2.35	0.55	0.19	0.37
09-11-329.spc	60.00	13.5	46.8	2.35	0.57	0.23	0.43

ENGINEERING DESIGN FILE

01/30/2004

Page 89 of 123

09-11-317.spc	60.00		25.3	46.8	2.35	0.61	0.26	0.52
09-11-326.spc	60.00		16.5	46.8	2.35	0.57	0.23	0.43
09-12-350.spc	60.00		22.2	18.9	2.35	0.59	0.25	0.48
09-12-620.spc	60.00		26.1	6.8	2.35	0.56	0.22	0.41
BS050936.spc	30.00	4	28.0	6.7	2.34	0.60	0.25	0.46
09-12-038.spc	60.00		4.3	32.9	2.34	0.57	0.24	0.45
09-11-625.spc	60.00		17.4	34.6	2.34	0.57	0.22	0.43
09-11-322.spc	60.00		18.4	46.6	2.34	0.54	0.19	0.36
09-11-617.spc	60.00		21.2	34.8	2.34	0.60	0.26	0.50
09-12-209.spc	60.00		12.9	24.9	2.34	0.56	0.22	0.41
09-13-064.spc	60.00		1.8	4.5	2.33	0.54	0.19	0.36
09-11-314.spc	60.00		28.3	46.8	2.33	0.62	0.28	0.56
09-12-205.spc	60.00		14.9	24.8	2.33	0.53	0.17	0.33
09-11-601.spc	60.00		32.0	34.6	2.33	0.59	0.23	0.48
09-11-611.spc	60.00		24.2	34.8	2.32	0.63	0.29	0.58
09-12-217.spc	60.00		8.9	24.7	2.32	0.54	0.19	0.36
BS050914.spc	30.00	21	32.2	40.5	2.32	0.60	0.25	0.47
09-12-289.spc	60.00		31.2	20.7	2.32	0.62	0.27	0.54
09-12-050.spc	60.00		31.1	30.9	2.32	0.63	0.29	0.57
09-11-452.spc	60.00		22.9	40.8	2.31	0.60	0.26	0.51
09-12-011.spc	60.00		31.0	32.9	2.31	0.60	0.27	0.52
BS050913.spc	30.00	21	31.2	40.8	2.31	0.59	0.24	0.44
09-13-050.spc	60.00		12.3	4.8	2.31	0.56	0.22	0.42
09-12-364.spc	60.00		9.4	18.6	2.31	0.54	0.19	0.38
09-11-511.spc	60.00		21.3	38.6	2.30	0.56	0.21	0.42
09-12-262.spc	60.00		16.2	23.1	2.30	0.52	0.17	0.33
09-12-334.spc	60.00		33.1	18.6	2.30	0.55	0.20	0.41
09-11-632.spc	60.00		12.4	34.8	2.28	0.61	0.28	0.55
09-12-037.spc	60.00		3.4	32.6	2.28	0.55	0.20	0.40
09-12-313.spc	60.00		7.5	20.7	2.28	0.56	0.21	0.42
09-12-049.spc	60.00		30.1	30.7	2.27	0.56	0.22	0.43
09-12-199.spc	60.00		20.7	24.8	2.27	0.53	0.19	0.36
09-12-236.spc	60.00		33.2	22.9	2.27	0.64	0.30	0.61
09-11-157.spc	60.00		35.2	52.8	2.27	0.53	0.22	0.43
09-13-006.spc	60.00		9.3	7.1	2.27	0.51	0.15	0.30
09-11-377.spc	60.00		14.1	44.8	2.26	0.55	0.22	0.42
09-12-365.spc	60.00		10.3	18.9	2.26	0.58	0.25	0.48
09-11-418.spc	60.00		14.2	42.6	2.26	0.53	0.19	0.36
09-11-514.spc	60.00		21.3	38.6	2.26	0.55	0.20	0.41
09-12-410.spc	60.00		7.0	16.9	2.25	0.59	0.26	0.52

ENGINEERING DESIGN FILE

01/30/2004

Page 90 of 123

09-11-463.spc	60.00	9.8	40.6	2.24	0.53	0.19	0.37	
09-12-082.spc	60.00	36.4	27.9	2.24	0.52	0.17	0.33	
09-11-451.spc	60.00	21.9	40.7	2.24	0.53	0.19	0.38	
09-12-295.spc	60.00	25.3	20.7	2.24	0.57	0.23	0.47	
09-12-419.spc	60.00	2.5	16.8	2.24	0.56	0.24	0.46	
09-11-275.spc	60.00	21.5	48.8	2.24	0.59	0.26	0.52	
09-12-137.spc	60.00	31.5	26.9	2.23	0.57	0.25	0.48	
09-11-319.spc	60.00	21.4	46.6	2.23	0.53	0.19	0.38	
09-11-419.spc	60.00	15.2	42.8	2.23	0.54	0.21	0.40	
09-12-008.spc	60.00	34.0	32.9	2.23	0.60	0.28	0.55	
09-12-138.spc	60.00	32.4	27.1	2.23	0.50	0.15	0.29	
09-12-539.spc	60.00	14.8	10.9	2.22	0.54	0.22	0.41	
09-12-328.spc	60.00	36.4	17.9	2.22	0.56	0.22	0.44	
09-13-125.spc	60.00	33.5	0.8	2.22	0.59	0.27	0.53	
09-13-007.spc	60.00	4.4	6.5	2.22	0.55	0.22	0.44	
09-11-455.spc	60.00	19.8	40.8	2.21	0.56	0.24	0.46	
BS050909.spc	30.00	22	32.2	42.5	2.21	0.56	0.23	0.42
09-12-466.spc	60.00	33.2	12.7	2.20	0.51	0.18	0.35	
09-12-166.spc	60.00	6.9	26.7	2.20	0.49	0.16	0.29	
09-11-560.spc	60.00	21.4	36.8	2.20	0.66	0.33	0.67	
09-12-302.spc	60.00	18.3	20.9	2.20	0.58	0.26	0.51	
09-12-596.spc	60.00	6.7	8.9	2.20	0.57	0.26	0.50	
09-13-106.spc	60.00	15.0	2.6	2.20	0.51	0.17	0.34	
09-12-047.spc	60.00	34.1	30.9	2.19	0.58	0.26	0.52	
09-13-074.spc	60.00	4.8	4.8	2.19	0.57	0.25	0.49	
09-13-053.spc	60.00	9.4	4.8	2.19	0.54	0.23	0.43	
09-11-320.spc	60.00	22.4	46.8	2.18	0.56	0.25	0.49	
09-11-472.spc	60.00	4.0	40.5	2.18	0.53	0.20	0.40	
09-12-299.spc	60.00	21.3	20.9	2.18	0.67	0.34	0.69	
BS050910.spc	30.00	22	33.2	42.5	2.18	0.57	0.24	0.45
09-11-469.spc	60.00	7.0	40.6	2.17	0.53	0.20	0.39	
09-11-274.spc	60.00	20.5	48.7	2.17	0.51	0.18	0.36	
09-12-103.spc	60.00	21.3	28.9	2.17	0.55	0.22	0.46	
09-12-317.spc	60.00	3.6	20.8	2.17	0.63	0.30	0.61	
09-12-569.spc	60.00	33.4	8.8	2.17	0.55	0.24	0.45	
09-11-417.spc	60.00	19.1	43.0	2.16	0.48	0.14	0.27	
09-12-154.spc	60.00	18.6	26.7	2.16	0.49	0.16	0.29	
09-11-281.spc	60.00	15.5	48.8	2.16	0.54	0.23	0.43	
09-11-556.spc	60.00	23.4	36.6	2.16	0.56	0.23	0.47	
09-12-065.spc	60.00	16.3	30.9	2.16	0.57	0.26	0.51	

ENGINEERING DESIGN FILE

01/30/2004

Page 91 of 123

09-13-019.spc	60.00		35.0	4.7	2.16	0.50	0.17	0.34
09-12-182.spc	60.00		33.8	24.9	2.16	0.58	0.27	0.53
09-13-123.spc	60.00		2.5	3.2	2.15	0.49	0.15	0.31
09-11-316.spc	60.00		24.4	46.6	2.15	0.52	0.19	0.38
09-12-592.spc	60.00		8.7	8.6	2.15	0.53	0.20	0.41
09-11-571.spc	60.00		8.6	36.6	2.15	0.54	0.21	0.43
09-11-430.spc	60.00		2.3	42.5	2.14	0.49	0.16	0.31
09-11-448.spc	60.00		24.8	40.6	2.14	0.54	0.22	0.44
09-12-353.spc	60.00		19.2	18.9	2.14	0.55	0.25	0.48
09-12-602.spc	60.00		1.8	8.8	2.14	0.52	0.21	0.39
09-12-529.spc	60.00		22.7	10.7	2.13	0.50	0.17	0.34
09-12-459.spc	60.00		8.2	15.1	2.13	0.49	0.16	0.34
09-12-499.spc	60.00		3.6	13.0	2.13	0.50	0.17	0.33
09-13-083.spc	60.00		36.7	2.8	2.13	0.52	0.22	0.42
09-13-100.spc	60.00		17.9	2.6	2.13	0.50	0.18	0.36
09-12-538.spc	60.00		13.9	10.7	2.13	0.50	0.18	0.36
09-11-280.spc	60.00		14.5	48.6	2.12	0.50	0.18	0.36
09-12-090.spc	60.00		32.1	29.1	2.12	0.51	0.19	0.39
09-12-118.spc	60.00		9.4	28.9	2.11	0.49	0.17	0.33
09-12-108.spc	60.00		20.2	29.1	2.11	0.50	0.17	0.35
09-12-028.spc	60.00		12.3	32.8	2.10	0.50	0.18	0.36
09-12-445.spc	60.00		15.2	14.7	2.10	0.53	0.21	0.42
09-12-340.spc	60.00		30.1	18.7	2.10	0.51	0.19	0.39
09-13-111.spc	60.00		14.0	3.1	2.09	0.47	0.15	0.30
09-12-338.spc	60.00		34.0	18.9	2.09	0.56	0.25	0.50
09-13-058.spc	60.00		5.6	4.6	2.09	0.50	0.18	0.35
09-11-626.spc	60.00		18.3	34.8	2.08	0.58	0.28	0.56
09-12-344.spc	60.00		28.1	18.9	2.08	0.54	0.24	0.47
09-11-272.spc	60.00		24.4	48.8	2.08	0.57	0.27	0.53
09-11-550.spc	60.00		26.3	36.7	2.08	0.60	0.28	0.57
09-11-599.spc	60.00		36.0	34.7	2.07	0.51	0.22	0.41
BS050903.spc	30.00	28	23.5	54.0	2.07	0.53	0.23	0.42
09-12-155.spc	60.00		19.6	26.9	2.07	0.50	0.21	0.39
09-12-487.spc	60.00		15.4	12.8	2.07	0.49	0.18	0.35
09-11-425.spc	60.00		9.2	42.7	2.06	0.53	0.23	0.46
09-12-347.spc	60.00		25.2	18.9	2.06	0.53	0.24	0.47
09-12-486.spc	60.00		20.3	13.1	2.06	0.46	0.14	0.27
09-12-007.spc	60.00		33.0	32.6	2.06	0.53	0.22	0.45
09-12-336.spc	60.00		35.0	19.1	2.05	0.48	0.16	0.33
09-13-026.spc	60.00		33.0	4.8	2.04	0.50	0.21	0.40

ENGINEERING DESIGN FILE

01/30/2004

Page 92 of 123

09-12-470.spc	60.00	31.3	12.9	2.04	0.51	0.22	0.43	
09-12-020.spc	60.00	22.1	32.9	2.03	0.54	0.25	0.49	
09-12-110.spc	60.00	16.3	28.9	2.03	0.57	0.27	0.55	
09-12-599.spc	60.00	3.8	8.8	2.03	0.57	0.27	0.55	
09-11-559.spc	60.00	20.4	36.6	2.03	0.55	0.24	0.50	
09-12-034.spc	60.00	6.3	32.6	2.03	0.48	0.17	0.34	
09-11-631.spc	60.00	11.4	34.7	2.02	0.49	0.18	0.37	
09-13-207.spc	60.00	10.7	1.2	2.02	0.45	0.14	0.28	
09-12-391.spc	60.00	20.8	16.7	2.02	0.49	0.18	0.37	
09-12-266.spc	60.00	8.3	22.8	2.02	0.50	0.21	0.40	
09-13-009.spc	60.00	6.3	7.1	2.01	0.46	0.14	0.29	
09-12-043.spc	60.00	36.4	29.9	2.01	0.47	0.17	0.33	
09-11-500.spc	60.00	34.2	38.7	2.01	0.64	0.34	0.68	
09-11-635.spc	60.00	9.5	34.7	2.01	0.52	0.24	0.46	
09-12-496.spc	60.00	6.6	13.0	2.01	0.47	0.17	0.33	
09-12-521.spc	60.00	32.6	10.8	2.00	0.52	0.23	0.46	
09-13-047.spc	60.00	15.2	4.9	2.00	0.51	0.22	0.43	
09-11-271.spc	60.00	23.5	48.6	1.99	0.49	0.19	0.38	
09-12-035.spc	60.00	7.3	32.9	1.99	0.51	0.23	0.44	
09-12-523.spc	60.00	28.6	10.6	1.99	0.47	0.17	0.34	
09-12-272.spc	60.00	3.4	22.9	1.98	0.49	0.20	0.39	
09-11-369.spc	60.00	24.1	45.0	1.98	0.45	0.14	0.29	
09-12-615.spc	60.00	31.6	6.6	1.98	0.45	0.15	0.30	
09-11-293.spc	60.00	6.6	48.7	1.98	0.51	0.23	0.45	
09-12-589.spc	60.00	11.6	8.8	1.98	0.49	0.19	0.38	
09-11-519.spc	60.00	20.3	38.9	1.97	0.46	0.16	0.33	
09-12-242.spc	60.00	29.6	22.9	1.97	0.52	0.24	0.46	
09-13-012.spc	60.00	3.3	7.1	1.97	0.46	0.16	0.32	
09-11-586.spc	60.00	36.3	33.8	1.96	0.46	0.16	0.32	
09-11-531.spc	60.00	8.6	38.9	1.96	0.44	0.14	0.28	
BS050907.spc	30.00	22	27.1	43.0	1.96	0.52	0.23	0.43
BS050940.spc	30.00	2	8.2	3.0	1.96	0.64	0.32	0.63
09-11-298.spc	60.00	2.8	48.4	1.96	0.48	0.19	0.37	
09-13-112.spc	60.00	9.1	2.7	1.96	0.48	0.19	0.38	
09-11-503.spc	60.00	31.2	38.7	1.95	0.60	0.30	0.61	
09-12-517.spc	60.00	34.6	10.6	1.95	0.46	0.17	0.33	
09-12-414.spc	60.00	5.0	17.1	1.95	0.46	0.16	0.32	
09-11-634.spc	60.00	8.5	34.6	1.95	0.47	0.18	0.36	
09-12-223.spc	60.00	3.0	24.7	1.95	0.47	0.18	0.35	
09-12-450.spc	60.00	14.1	15.1	1.94	0.45	0.16	0.32	

ENGINEERING DESIGN FILE

01/30/2004

Page 93 of 123

09-11-333.spc	60.00		11.6	46.9	1.94	0.44	0.14	0.28
09-12-366.spc	60.00		11.3	19.1	1.93	0.44	0.14	0.29
09-12-311.spc	60.00		9.4	20.9	1.93	0.54	0.26	0.52
09-12-384.spc	60.00		35.4	17.2	1.93	0.47	0.17	0.36
09-12-196.spc	60.00		23.7	24.7	1.93	0.48	0.19	0.39
09-11-341.spc	60.00		1.8	46.6	1.93	0.47	0.20	0.38
09-13-045.spc	60.00		19.2	5.1	1.93	0.43	0.13	0.27
09-12-341.spc	60.00		31.1	18.9	1.93	0.53	0.25	0.50
BS050920.spc	30.00	20	5.7	38.5	1.93	0.60	0.29	0.57
09-11-479.spc	60.00		2.0	40.7	1.92	0.48	0.21	0.40
09-11-506.spc	60.00		28.2	38.7	1.92	0.55	0.27	0.54
09-12-346.spc	60.00		24.2	18.7	1.92	0.47	0.19	0.37
09-12-258.spc	60.00		17.2	22.7	1.92	0.44	0.14	0.29
09-12-398.spc	60.00		15.8	16.9	1.92	0.52	0.24	0.48
09-13-048.spc	60.00		16.2	5.1	1.92	0.43	0.13	0.26
09-12-447.spc	60.00		17.1	15.1	1.91	0.47	0.18	0.37
09-11-429.spc	60.00		7.2	43.0	1.91	0.43	0.14	0.28
BS050937.spc	30.00	4	28.7	6.7	1.91	0.53	0.24	0.46
09-12-598.spc	60.00		2.8	8.7	1.91	0.47	0.18	0.36
09-11-446.spc	60.00		28.8	40.8	1.90	0.54	0.26	0.53
09-12-613.spc	60.00		29.7	7.0	1.90	0.45	0.16	0.32
09-11-501.spc	60.00		35.2	38.9	1.90	0.51	0.22	0.46
09-12-467.spc	60.00		34.2	12.8	1.90	0.48	0.21	0.41
09-11-461.spc	60.00		13.9	40.8	1.89	0.53	0.26	0.52
09-11-339.spc	60.00		5.7	46.9	1.89	0.43	0.13	0.27
09-12-197.spc	60.00		24.6	24.9	1.89	0.51	0.24	0.46
09-11-342.spc	60.00		2.8	46.8	1.89	0.42	0.13	0.26
09-12-310.spc	60.00		10.4	20.7	1.88	0.48	0.20	0.40
09-12-297.spc	60.00		23.3	21.1	1.88	0.46	0.18	0.38
09-11-411.spc	60.00		25.1	43.0	1.88	0.44	0.15	0.32
BS050917.spc	30.00	21	35.2	40.5	1.88	0.51	0.23	0.43
09-11-428.spc	60.00		6.3	42.7	1.88	0.50	0.23	0.45
09-12-549.spc	60.00		9.9	11.1	1.87	0.43	0.14	0.29
09-11-387.spc	60.00		9.1	45.0	1.87	0.42	0.14	0.28
BS050905.spc	30.00	23	35.2	44.5	1.87	0.48	0.21	0.37
09-12-420.spc	60.00		3.5	17.1	1.87	0.43	0.14	0.29
09-11-590.spc	60.00		33.9	34.7	1.86	0.54	0.26	0.53
09-12-181.spc	60.00		32.8	24.8	1.86	0.45	0.17	0.34
09-11-181.spc	60.00		14.5	52.5	1.86	0.43	0.17	0.33
09-12-169.spc	60.00		4.0	26.7	1.86	0.45	0.17	0.34

ENGINEERING DESIGN FILE

01/30/2004

Page 94 of 123

09-12-490.spc	60.00		12.5	12.8	1.86	0.43	0.15	0.29
09-11-312.spc	60.00		32.3	46.9	1.86	0.43	0.15	0.31
09-11-294.spc	60.00		7.5	48.8	1.85	0.42	0.13	0.26
09-12-585.spc	60.00		19.5	9.1	1.85	0.43	0.14	0.29
09-11-466.spc	60.00		10.0	40.6	1.85	0.46	0.18	0.36
09-13-051.spc	60.00		13.3	5.1	1.85	0.42	0.14	0.28
09-12-062.spc	60.00		19.3	30.9	1.84	0.54	0.27	0.55
09-12-015.spc	60.00		29.0	33.1	1.84	0.44	0.16	0.33
BS050908.spc	30.00	22	28.1	43.0	1.84	0.51	0.23	0.44
09-11-345.spc	60.00		2.8	46.9	1.84	0.42	0.13	0.27
09-12-009.spc	60.00		34.9	33.1	1.84	0.44	0.16	0.32
09-12-017.spc	60.00		25.1	32.9	1.83	0.49	0.23	0.46
09-12-335.spc	60.00		34.0	18.9	1.83	0.53	0.26	0.52
09-11-282.spc	60.00		16.5	49.0	1.83	0.41	0.13	0.25
09-11-318.spc	60.00		26.3	47.0	1.83	0.43	0.15	0.30
09-11-332.spc	60.00		10.6	46.7	1.82	0.49	0.23	0.46
09-12-087.spc	60.00		35.0	29.1	1.82	0.43	0.15	0.32
09-12-359.spc	60.00		16.3	18.9	1.82	0.49	0.23	0.46
09-12-565.spc	60.00		35.4	8.6	1.82	0.45	0.18	0.36
09-12-183.spc	60.00		34.8	25.0	1.81	0.43	0.15	0.31
09-12-401.spc	60.00		12.8	16.9	1.81	0.52	0.26	0.52
09-13-030.spc	60.00		31.0	5.0	1.81	0.41	0.14	0.28
09-13-093.spc	60.00		28.8	2.7	1.81	0.43	0.16	0.33
09-11-414.spc	60.00		22.1	43.0	1.81	0.42	0.15	0.30
09-12-021.spc	60.00		22.6	33.0	1.81	0.42	0.14	0.29
09-12-594.spc	60.00		10.6	9.1	1.81	0.43	0.15	0.32
BS050933.spc	30.00	9	23.7	17.0	1.80	0.52	0.24	0.47
09-12-004.spc	60.00		36.4	31.9	1.80	0.42	0.15	0.30
09-12-301.spc	60.00		19.3	20.7	1.80	0.49	0.22	0.45
09-11-375.spc	60.00		18.1	45.0	1.80	0.41	0.13	0.27
09-12-033.spc	60.00		11.3	33.1	1.80	0.41	0.14	0.28
09-11-344.spc	60.00		1.8	46.6	1.80	0.46	0.20	0.39
09-13-080.spc	60.00		36.7	2.8	1.80	0.48	0.22	0.43
09-12-304.spc	60.00		16.4	20.7	1.79	0.44	0.17	0.35
09-11-285.spc	60.00		13.4	49.0	1.79	0.41	0.14	0.28
09-12-473.spc	60.00		28.3	12.9	1.79	0.46	0.20	0.40
09-13-194.spc	60.00		13.7	0.8	1.79	0.43	0.18	0.33
09-11-502.spc	60.00		30.2	38.6	1.79	0.48	0.21	0.43
09-11-284.spc	60.00		12.5	48.8	1.78	0.48	0.23	0.45
BS050915.spc	30.00	21	33.2	40.5	1.78	0.53	0.26	0.50

ENGINEERING DESIGN FILE

01/30/2004

Page 95 of 123

09-11-273.spc	60.00		25.4	48.9	1.77	0.42	0.15	0.31
09-11-384.spc	60.00		12.1	45.0	1.77	0.41	0.14	0.28
09-11-570.spc	60.00		13.5	37.0	1.77	0.42	0.15	0.32
09-12-374.spc	60.00		1.9	18.8	1.77	0.45	0.20	0.38
09-13-210.spc	60.00		9.7	1.2	1.77	0.40	0.13	0.27
09-12-478.spc	60.00		24.3	12.8	1.77	0.42	0.16	0.31
09-12-625.spc	60.00		19.2	6.9	1.76	0.42	0.16	0.32
09-12-039.spc	60.00		5.3	33.1	1.76	0.40	0.14	0.28
09-12-068.spc	60.00		13.4	30.9	1.76	0.52	0.26	0.53
09-12-603.spc	60.00		2.8	9.0	1.76	0.42	0.16	0.33
09-12-151.spc	60.00		21.5	26.8	1.75	0.42	0.16	0.31
09-12-397.spc	60.00		14.8	16.8	1.75	0.44	0.18	0.36
09-12-402.spc	60.00		13.8	17.1	1.75	0.40	0.14	0.28
09-11-357.spc	60.00		33.0	44.9	1.74	0.41	0.15	0.30
09-12-574.spc	60.00		26.4	8.7	1.74	0.43	0.17	0.34
09-13-075.spc	60.00		6.7	5.3	1.73	0.40	0.14	0.28
09-11-432.spc	60.00		4.2	42.9	1.73	0.41	0.14	0.30
09-12-053.spc	60.00		28.2	30.9	1.72	0.54	0.28	0.58
09-12-124.spc	60.00		5.0	28.9	1.72	0.47	0.21	0.43
09-13-027.spc	60.00		34.0	5.0	1.71	0.40	0.14	0.29
09-13-219.spc	60.00		6.9	1.2	1.71	0.40	0.14	0.29
09-13-101.spc	60.00		18.9	2.8	1.71	0.47	0.23	0.45
09-12-562.spc	60.00		36.5	7.9	1.70	0.44	0.19	0.38
09-13-204.spc	60.00		11.7	1.1	1.70	0.39	0.13	0.28
09-12-461.spc	60.00		1.5	14.8	1.70	0.43	0.19	0.37
09-12-518.spc	60.00		35.6	10.8	1.70	0.47	0.23	0.45
BS050906.spc	30.00	22	26.1	43.0	1.70	0.46	0.22	0.40
09-13-042.spc	60.00		22.1	5.1	1.69	0.39	0.13	0.27
09-11-360.spc	60.00		30.0	45.0	1.69	0.40	0.14	0.29
09-13-072.spc	60.00		2.7	5.1	1.69	0.40	0.14	0.29
09-11-525.spc	60.00		14.4	39.0	1.69	0.40	0.14	0.29
09-12-153.spc	60.00		23.5	27.0	1.69	0.38	0.12	0.24
09-13-078.spc	60.00		5.8	5.0	1.69	0.39	0.14	0.28
09-11-456.spc	60.00		20.8	41.0	1.68	0.40	0.15	0.31
09-12-616.spc	60.00		1.8	4.6	1.68	0.39	0.14	0.28
09-11-302.spc	60.00		1.9	48.6	1.68	0.45	0.21	0.41
09-12-067.spc	60.00		12.4	30.8	1.68	0.43	0.18	0.38
09-12-048.spc	60.00		35.0	31.1	1.68	0.40	0.14	0.30
09-12-014.spc	60.00		28.0	32.9	1.67	0.46	0.22	0.43
09-12-261.spc	60.00		15.2	22.9	1.67	0.40	0.14	0.30

ENGINEERING DESIGN FILE

01/30/2004

Page 96 of 123

09-12-147.spc	60.00	29.5	27.1	1.67	0.40	0.14	0.30	
09-11-565.spc	60.00	14.5	36.8	1.66	0.43	0.18	0.36	
09-12-561.spc	60.00	2.3	11.0	1.66	0.39	0.14	0.29	
09-12-170.spc	60.00	4.9	26.9	1.66	0.46	0.22	0.43	
09-13-038.spc	60.00	24.2	4.8	1.66	0.44	0.21	0.41	
09-11-474.spc	60.00	6.0	41.0	1.66	0.40	0.15	0.31	
09-11-422.spc	60.00	12.2	42.8	1.66	0.46	0.22	0.45	
09-12-623.spc	60.00	23.2	6.9	1.66	0.45	0.21	0.42	
09-11-594.spc	60.00	31.8	35.2	1.66	0.43	0.18	0.37	
09-12-243.spc	60.00	30.6	23.1	1.66	0.39	0.14	0.29	
09-13-066.spc	60.00	-0.2	4.4	1.65	0.39	0.14	0.28	
09-12-372.spc	60.00	5.3	19.1	1.65	0.40	0.15	0.31	
09-12-531.spc	60.00	24.6	11.1	1.65	0.39	0.14	0.29	
09-12-633.spc	60.00	15.2	7.1	1.65	0.38	0.13	0.27	
BS050904.spc	30.00	23	34.2	1.65	0.47	0.22	0.42	
09-11-528.spc	60.00	11.5	38.8	1.65	0.40	0.15	0.31	
BS050919.spc	30.00	20	4.7	38.5	1.65	0.60	0.31	0.62
09-11-598.spc	60.00	35.0	34.6	1.64	0.41	0.17	0.34	
09-12-188.spc	60.00	27.8	24.9	1.64	0.41	0.18	0.35	
09-12-537.spc	60.00	18.8	11.1	1.63	0.37	0.13	0.26	
09-12-481.spc	60.00	21.3	12.9	1.63	0.39	0.15	0.30	
09-11-323.spc	60.00	19.4	46.8	1.62	0.46	0.23	0.45	
09-13-035.spc	60.00	27.1	4.8	1.62	0.41	0.18	0.35	
09-12-628.spc	60.00	16.2	6.8	1.62	0.41	0.17	0.34	
09-12-174.spc	60.00	3.0	27.0	1.62	0.37	0.13	0.26	
09-12-316.spc	60.00	4.6	20.8	1.62	0.45	0.21	0.43	
09-12-071.spc	60.00	10.4	30.9	1.61	0.49	0.25	0.51	
09-11-324.spc	60.00	20.4	47.0	1.61	0.37	0.13	0.27	
09-11-277.spc	60.00	17.5	48.6	1.61	0.40	0.17	0.34	
09-12-094.spc	60.00	27.2	28.8	1.61	0.40	0.16	0.32	
09-12-578.spc	60.00	24.5	8.9	1.61	0.44	0.21	0.42	
09-12-571.spc	60.00	29.4	8.7	1.60	0.39	0.16	0.32	
09-12-073.spc	60.00	6.5	30.8	1.60	0.40	0.16	0.32	
09-12-056.spc	60.00	25.2	30.9	1.60	0.54	0.29	0.59	
09-12-580.spc	60.00	20.5	8.7	1.60	0.40	0.16	0.33	
09-11-420.spc	60.00	16.2	43.0	1.60	0.37	0.13	0.27	
09-11-564.spc	60.00	19.4	37.0	1.59	0.42	0.18	0.39	
09-12-018.spc	60.00	25.6	33.0	1.59	0.37	0.13	0.27	
09-11-637.spc	60.00	5.5	34.7	1.59	0.41	0.17	0.36	
09-12-622.spc	60.00	22.2	7.0	1.58	0.40	0.17	0.34	

ENGINEERING DESIGN FILE

01/30/2004

Page 97 of 123

09-12-105.spc	60.00	23.2	29.0	1.58	0.39	0.16	0.33
09-12-061.spc	60.00	18.3	30.7	1.58	0.44	0.20	0.42
09-11-313.spc	60.00	27.3	46.6	1.58	0.44	0.20	0.41
09-11-378.spc	60.00	15.1	45.0	1.57	0.37	0.14	0.28
09-13-054.spc	60.00	10.3	5.1	1.57	0.37	0.13	0.27
09-12-179.spc	60.00	36.7	24.8	1.56	0.57	0.32	0.66
09-13-102.spc	60.00	19.9	3.1	1.56	0.37	0.14	0.29
09-13-216.spc	60.00	7.9	1.2	1.56	0.36	0.13	0.27
09-12-268.spc	60.00	10.3	23.0	1.55	0.38	0.15	0.31
09-13-120.spc	60.00	5.1	2.9	1.55	0.37	0.14	0.29
09-11-235.spc	60.00	21.4	50.6	1.55	0.38	0.17	0.36
09-11-628.spc	60.00	14.4	34.8	1.55	0.43	0.19	0.40
09-12-534.spc	60.00	21.7	11.1	1.55	0.36	0.12	0.26
09-12-055.spc	60.00	24.2	30.8	1.54	0.44	0.20	0.42
09-13-060.spc	60.00	7.6	5.0	1.54	0.36	0.13	0.26
09-13-092.spc	60.00	27.8	2.8	1.54	0.52	0.28	0.58
09-12-064.spc	60.00	15.3	30.9	1.54	0.39	0.16	0.33
09-12-608.spc	60.00	36.6	6.8	1.53	0.45	0.22	0.45
09-12-265.spc	60.00	13.2	23.0	1.53	0.37	0.15	0.30
09-12-298.spc	60.00	22.3	20.8	1.53	0.47	0.23	0.48
09-11-423.spc	60.00	13.2	43.0	1.53	0.36	0.13	0.27
09-11-268.spc	60.00	26.4	48.6	1.53	0.43	0.19	0.40
09-12-114.spc	60.00	14.4	29.0	1.53	0.39	0.16	0.33
09-12-303.spc	60.00	17.4	21.1	1.53	0.36	0.13	0.28
09-12-586.spc	60.00	14.6	8.8	1.52	0.39	0.16	0.33
09-13-108.spc	60.00	16.9	3.0	1.52	0.36	0.14	0.29
09-13-201.spc	60.00	12.7	1.1	1.52	0.35	0.12	0.25
09-11-288.spc	60.00	13.5	48.9	1.52	0.35	0.13	0.26
09-13-209.spc	60.00	8.8	0.8	1.51	0.38	0.17	0.33
09-12-157.spc	60.00	15.7	26.9	1.51	0.37	0.15	0.29
09-11-303.spc	60.00	2.9	48.8	1.51	0.36	0.14	0.29
09-12-354.spc	60.00	20.2	19.1	1.51	0.37	0.14	0.29
09-12-036.spc	60.00	8.3	33.1	1.51	0.36	0.13	0.28
09-12-411.spc	60.00	8.0	17.1	1.50	0.37	0.15	0.31
09-11-327.spc	60.00	17.4	47.0	1.50	0.36	0.14	0.29
09-12-552.spc	60.00	6.9	11.1	1.50	0.36	0.14	0.29
09-12-193.spc	60.00	26.7	24.7	1.49	0.36	0.14	0.29
09-11-330.spc	60.00	14.5	47.0	1.49	0.36	0.14	0.29
09-12-051.spc	60.00	32.1	31.1	1.49	0.38	0.15	0.33
09-11-459.spc	60.00	17.8	41.0	1.49	0.35	0.13	0.26

ENGINEERING DESIGN FILE

01/30/2004

Page 98 of 123

09-13-203.spc	60.00		10.7	0.8	1.49	0.40	0.19	0.38
09-13-096.spc	60.00		25.9	2.9	1.48	0.39	0.17	0.36
09-11-616.spc	60.00		20.2	34.7	1.48	0.42	0.19	0.40
09-12-618.spc	60.00		-0.2	4.4	1.48	0.34	0.12	0.25
BS050912.spc	30.00	22	35.2	42.5	1.48	0.43	0.21	0.41
09-12-617.spc	60.00		0.8	4.5	1.48	0.39	0.18	0.36
09-11-450.spc	60.00		26.8	41.0	1.48	0.36	0.14	0.30
09-11-291.spc	60.00		10.5	48.9	1.48	0.35	0.13	0.27
09-11-462.spc	60.00		14.9	41.0	1.48	0.35	0.13	0.27
09-12-489.spc	60.00		17.4	13.0	1.47	0.35	0.13	0.27
09-12-525.spc	60.00		30.6	11.1	1.47	0.35	0.13	0.27
09-12-204.spc	60.00		19.7	25.1	1.47	0.36	0.14	0.29
09-13-213.spc	60.00		8.8	1.2	1.47	0.35	0.12	0.26
09-12-130.spc	60.00		36.9	25.9	1.47	0.41	0.19	0.39
09-12-070.spc	60.00		9.4	30.9	1.46	0.37	0.16	0.32
09-12-438.spc	60.00		26.1	15.1	1.46	0.37	0.15	0.31
09-11-605.spc	60.00		30.1	34.7	1.46	0.54	0.30	0.62
09-12-148.spc	60.00		24.5	26.7	1.46	0.38	0.17	0.34
09-12-030.spc	60.00		14.2	33.0	1.46	0.36	0.14	0.29
09-12-156.spc	60.00		20.5	27.1	1.46	0.35	0.13	0.28
09-11-390.spc	60.00		6.2	44.9	1.46	0.36	0.14	0.30
09-12-556.spc	60.00		2.0	10.6	1.45	0.37	0.15	0.31
09-12-577.spc	60.00		23.5	8.7	1.45	0.37	0.16	0.32
09-13-036.spc	60.00		28.1	5.1	1.44	0.34	0.12	0.26
09-11-539.spc	60.00		1.7	38.7	1.44	0.42	0.21	0.43
BS050922.spc	30.00	11	35.2	21.0	1.43	0.45	0.23	0.45
09-12-363.spc	60.00		14.3	19.1	1.43	0.35	0.13	0.28
09-12-288.spc	60.00		29.3	21.1	1.43	0.42	0.20	0.43
09-11-610.spc	60.00		23.2	34.7	1.43	0.41	0.20	0.41
09-13-094.spc	60.00		23.9	2.8	1.43	0.39	0.18	0.37
09-11-643.spc	60.00		2.3	34.7	1.42	0.38	0.17	0.35
09-13-003.spc	60.00		12.3	7.1	1.42	0.35	0.13	0.29
09-13-218.spc	60.00		6.0	0.8	1.41	0.45	0.24	0.49
09-11-336.spc	60.00		8.6	46.8	1.41	0.34	0.12	0.26
09-11-647.spc	60.00		1.3	34.7	1.41	0.37	0.17	0.34
09-12-375.spc	60.00		2.9	19.1	1.41	0.35	0.13	0.29
09-11-145.spc	60.00		8.2	54.5	1.41	0.36	0.18	0.38
09-11-372.spc	60.00		21.1	45.0	1.41	0.34	0.13	0.27
09-11-393.spc	60.00		3.1	45.0	1.41	0.34	0.13	0.27
09-12-540.spc	60.00		15.8	11.1	1.40	0.33	0.12	0.26

ENGINEERING DESIGN FILE

01/30/2004

Page 99 of 123

09-12-433.spc	60.00	27.1	14.7	1.40	0.38	0.17	0.36
09-11-561.spc	60.00	22.4	36.9	1.40	0.38	0.17	0.37
09-11-604.spc	60.00	29.1	34.6	1.40	0.42	0.20	0.43
09-11-321.spc	60.00	23.4	46.9	1.40	0.35	0.14	0.30
09-13-039.spc	60.00	25.1	5.1	1.39	0.32	0.12	0.24
09-12-575.spc	60.00	27.4	8.9	1.38	0.37	0.18	0.35
09-12-342.spc	60.00	32.1	19.1	1.38	0.34	0.13	0.27
09-12-469.spc	60.00	30.3	12.8	1.38	0.36	0.16	0.33
09-12-165.spc	60.00	11.8	27.1	1.38	0.32	0.12	0.25
09-12-076.spc	60.00	3.5	30.9	1.37	0.36	0.15	0.32
09-11-465.spc	60.00	11.8	41.0	1.37	0.34	0.14	0.30
09-13-197.spc	60.00	12.7	0.8	1.37	0.35	0.17	0.32
09-11-160.spc	60.00	35.2	52.6	1.37	0.34	0.17	0.35
09-13-198.spc	60.00	13.7	1.1	1.37	0.32	0.12	0.25
09-12-294.spc	60.00	26.3	21.1	1.37	0.35	0.15	0.32
09-11-163.spc	60.00	32.3	52.5	1.36	0.39	0.22	0.46
09-12-610.spc	60.00	32.6	6.9	1.36	0.37	0.17	0.36
09-12-604.spc	60.00	36.5	5.9	1.35	0.38	0.18	0.37
09-12-250.spc	60.00	26.1	22.8	1.35	0.35	0.15	0.32
09-13-091.spc	60.00	26.8	3.0	1.35	0.40	0.19	0.41
09-13-168.spc	60.00	23.3	1.1	1.35	0.32	0.12	0.25
09-11-510.spc	60.00	26.2	38.9	1.34	0.34	0.14	0.29
09-12-281.spc	60.00	36.6	20.8	1.34	0.43	0.23	0.48
09-13-114.spc	60.00	11.1	2.9	1.34	0.32	0.12	0.27
09-12-168.spc	60.00	8.8	27.1	1.34	0.33	0.13	0.27
09-13-088.spc	60.00	29.8	2.6	1.34	0.41	0.20	0.43
09-12-309.spc	60.00	11.4	21.1	1.34	0.35	0.15	0.33
09-12-351.spc	60.00	23.2	19.1	1.32	0.33	0.14	0.29
09-12-111.spc	60.00	17.3	29.1	1.32	0.36	0.16	0.34
09-11-540.spc	60.00	2.7	38.9	1.32	0.33	0.13	0.29
09-12-619.spc	60.00	25.1	7.0	1.32	0.36	0.16	0.34
09-11-238.spc	60.00	18.5	50.6	1.32	0.33	0.16	0.34
09-11-445.spc	60.00	27.8	40.7	1.31	0.37	0.17	0.37
09-11-471.spc	60.00	9.0	41.0	1.31	0.34	0.14	0.30
09-12-345.spc	60.00	29.1	19.1	1.31	0.33	0.13	0.29
09-12-408.spc	60.00	11.0	17.1	1.31	0.33	0.14	0.30
09-12-543.spc	60.00	12.9	11.1	1.31	0.32	0.13	0.28
09-12-128.spc	60.00	3.0	28.8	1.31	0.51	0.29	0.60
09-13-015.spc	60.00	1.9	7.1	1.30	0.33	0.13	0.29
09-11-142.spc	60.00	11.2	54.5	1.30	0.34	0.17	0.37

ENGINEERING DESIGN FILE

01/30/2004

Page 100 of 123

09-12-245.spc	60.00		26.7	22.9	1.30	0.36	0.18	0.35
09-13-206.spc	60.00		9.8	0.8	1.29	0.35	0.17	0.34
09-12-264.spc	60.00		12.2	22.9	1.29	0.31	0.12	0.25
09-11-300.spc	60.00		4.8	48.9	1.29	0.32	0.13	0.27
09-12-150.spc	60.00		26.5	27.1	1.29	0.32	0.13	0.27
09-11-522.spc	60.00		17.4	39.0	1.29	0.33	0.14	0.31
09-12-024.spc	60.00		20.2	33.1	1.29	0.32	0.13	0.28
09-12-237.spc	60.00		34.2	22.9	1.28	0.39	0.19	0.41
09-12-222.spc	60.00		7.9	25.1	1.28	0.31	0.12	0.27
09-12-624.spc	60.00		24.2	6.7	1.28	0.31	0.12	0.26
BS050921.spc	30.00	15	8.2	28.8	1.28	0.45	0.23	0.47
09-13-212.spc	60.00		7.9	0.8	1.27	0.35	0.17	0.34
09-12-058.spc	60.00		21.3	30.9	1.27	0.39	0.19	0.41
09-12-207.spc	60.00		16.9	25.0	1.27	0.30	0.12	0.24
09-12-210.spc	60.00		13.8	25.1	1.27	0.31	0.12	0.25
09-11-606.spc	60.00		31.1	34.9	1.27	0.35	0.16	0.35
09-12-315.spc	60.00		5.5	21.1	1.27	0.33	0.14	0.30
09-13-097.spc	60.00		20.9	2.7	1.27	0.36	0.17	0.35
09-12-198.spc	60.00		25.6	25.1	1.26	0.31	0.12	0.26
09-13-174.spc	60.00		21.4	1.1	1.26	0.30	0.11	0.23
09-12-576.spc	60.00		28.4	9.1	1.26	0.31	0.12	0.26
09-13-200.spc	60.00		11.7	0.8	1.26	0.36	0.18	0.37
09-13-156.spc	60.00		25.2	1.2	1.26	0.30	0.11	0.24
09-11-172.spc	60.00		23.4	52.5	1.25	0.32	0.16	0.33
09-11-229.spc	60.00		24.4	50.6	1.24	0.33	0.18	0.37
09-12-591.spc	60.00		13.6	9.0	1.24	0.31	0.13	0.27
09-12-493.spc	60.00		9.5	13.0	1.23	0.35	0.16	0.34
09-12-600.spc	60.00		4.8	9.0	1.23	0.31	0.13	0.28
09-12-201.spc	60.00		22.7	25.0	1.22	0.32	0.13	0.29
09-10-023.spc	60.00		35.3	56.7	1.22	0.38	0.28	0.59
BS050911.spc	30.00	22	34.2	42.5	1.22	0.45	0.24	0.49
09-13-071.spc	60.00		1.8	4.8	1.22	0.38	0.20	0.41
09-13-191.spc	60.00		14.7	0.8	1.22	0.32	0.16	0.31
09-12-267.spc	60.00		9.3	22.9	1.21	0.29	0.11	0.24
09-12-506.spc	60.00		1.8	12.8	1.21	0.36	0.19	0.39
09-12-255.spc	60.00		20.1	22.7	1.21	0.30	0.12	0.27
09-13-182.spc	60.00		17.5	0.8	1.21	0.32	0.16	0.32
09-12-582.spc	60.00		22.5	9.1	1.20	0.30	0.13	0.27
09-12-012.spc	60.00		32.0	33.0	1.20	0.32	0.14	0.31
09-12-588.spc	60.00		16.6	9.0	1.20	0.29	0.12	0.25

ENGINEERING DESIGN FILE

01/30/2004

Page 101 of 123

09-11-151.spc	60.00	2.5	54.4	1.20	0.31	0.16	0.33
09-13-122.spc	60.00	1.6	2.7	1.20	0.34	0.17	0.35
09-11-579.spc	60.00	7.6	36.8	1.19	0.33	0.16	0.34
09-11-220.spc	60.00	33.4	50.6	1.19	0.32	0.17	0.37
09-13-180.spc	60.00	19.4	1.1	1.19	0.28	0.11	0.24
09-11-582.spc	60.00	4.7	36.9	1.18	0.33	0.15	0.34
09-11-480.spc	60.00	3.0	41.0	1.18	0.32	0.14	0.31
09-12-501.spc	60.00	5.6	12.7	1.17	0.29	0.12	0.26
09-11-468.spc	60.00	12.0	40.9	1.17	0.31	0.13	0.29
09-11-118.spc	60.00	33.2	54.6	1.17	0.34	0.19	0.41
09-12-163.spc	60.00	9.8	26.8	1.17	0.32	0.15	0.32
09-11-315.spc	60.00	29.3	46.9	1.16	0.32	0.15	0.32
09-11-363.spc	60.00	27.0	45.0	1.16	0.29	0.12	0.26
09-12-293.spc	60.00	27.3	20.9	1.15	0.47	0.28	0.58
09-11-591.spc	60.00	34.8	35.2	1.15	0.30	0.13	0.29
09-11-366.spc	60.00	27.0	45.0	1.15	0.29	0.12	0.26
09-11-250.spc	60.00	6.5	50.6	1.15	0.32	0.18	0.38
09-12-126.spc	60.00	7.0	28.8	1.15	0.31	0.14	0.31
09-12-135.spc	60.00	35.4	27.0	1.15	0.31	0.14	0.30
09-13-165.spc	60.00	24.2	1.2	1.15	0.28	0.11	0.23
09-12-042.spc	60.00	2.5	32.9	1.14	0.30	0.13	0.28
09-12-597.spc	60.00	7.7	9.1	1.14	0.30	0.13	0.29
09-11-166.spc	60.00	29.3	52.5	1.14	0.32	0.18	0.38
09-11-276.spc	60.00	22.5	48.9	1.14	0.30	0.13	0.28
09-12-630.spc	60.00	18.2	7.0	1.14	0.28	0.12	0.26
09-12-369.spc	60.00	8.3	19.1	1.14	0.31	0.14	0.31
09-12-162.spc	60.00	14.7	27.0	1.14	0.27	0.10	0.22
09-11-127.spc	60.00	24.3	54.5	1.14	0.31	0.16	0.35
09-12-160.spc	60.00	12.7	26.9	1.14	0.32	0.15	0.32
09-12-390.spc	60.00	28.7	17.1	1.13	0.30	0.13	0.29
09-11-190.spc	60.00	5.7	52.5	1.13	0.31	0.17	0.36
09-12-483.spc	60.00	23.3	12.9	1.13	0.27	0.11	0.23
09-12-102.spc	60.00	26.2	29.1	1.13	0.31	0.14	0.31
09-12-337.spc	60.00	33.1	18.6	1.13	0.35	0.18	0.38
09-12-189.spc	60.00	28.8	25.1	1.12	0.29	0.12	0.27
09-12-471.spc	60.00	32.3	12.9	1.12	0.27	0.11	0.23
09-11-633.spc	60.00	13.4	34.8	1.12	0.30	0.14	0.30
09-13-084.spc	60.00	37.7	2.8	1.11	0.27	0.11	0.24
09-11-630.spc	60.00	16.4	34.8	1.11	0.29	0.13	0.29
09-11-603.spc	60.00	34.0	34.9	1.11	0.30	0.14	0.30

ENGINEERING DESIGN FILE

01/30/2004

Page 102 of 123

09-12-060.spc	60.00	23.3	31.0	1.11	0.31	0.14	0.31
09-12-306.spc	60.00	14.4	21.1	1.10	0.31	0.14	0.31
09-11-567.spc	60.00	16.5	36.8	1.10	0.27	0.11	0.24
09-12-468.spc	60.00	35.2	13.0	1.10	0.28	0.12	0.26
09-12-558.spc	60.00	3.9	11.0	1.10	0.29	0.13	0.28
09-12-171.spc	60.00	5.9	27.1	1.10	0.28	0.12	0.26
09-12-396.spc	60.00	19.7	17.2	1.10	0.29	0.13	0.28
09-12-393.spc	60.00	22.7	17.1	1.09	0.28	0.12	0.27
09-12-194.spc	60.00	27.6	24.9	1.09	0.32	0.17	0.35
09-12-027.spc	60.00	17.2	33.1	1.09	0.29	0.13	0.28
09-13-222.spc	60.00	5.9	1.2	1.09	0.31	0.15	0.32
09-12-219.spc	60.00	10.9	25.1	1.09	0.28	0.12	0.25
09-11-504.spc	60.00	32.2	38.8	1.09	0.31	0.15	0.33
09-12-474.spc	60.00	29.3	12.9	1.09	0.27	0.11	0.23
09-12-145.spc	60.00	27.5	26.7	1.09	0.28	0.13	0.26
09-12-041.spc	60.00	1.5	32.8	1.08	0.31	0.16	0.32
09-13-099.spc	60.00	22.9	3.0	1.08	0.29	0.13	0.30
09-11-133.spc	60.00	20.1	54.5	1.08	0.30	0.16	0.34
09-11-279.spc	60.00	19.5	48.9	1.08	0.28	0.12	0.27
09-11-505.spc	60.00	27.2	38.6	1.07	0.33	0.17	0.36
09-12-612.spc	60.00	34.6	6.7	1.07	0.27	0.12	0.26
09-11-184.spc	60.00	11.6	52.5	1.07	0.30	0.16	0.35
09-11-645.spc	60.00	4.3	34.6	1.07	0.28	0.12	0.27
09-11-627.spc	60.00	19.3	35.0	1.07	0.31	0.15	0.33
09-12-159.spc	60.00	17.7	27.0	1.06	0.26	0.11	0.23
09-12-395.spc	60.00	18.8	16.9	1.06	0.41	0.23	0.49
09-12-176.spc	60.00	36.7	24.9	1.06	0.55	0.33	0.70
09-13-164.spc	60.00	23.3	0.8	1.05	0.30	0.16	0.32
09-11-573.spc	60.00	10.6	36.9	1.05	0.32	0.16	0.35
09-12-383.spc	60.00	34.0	16.9	1.05	0.47	0.28	0.58
09-12-348.spc	60.00	26.2	19.1	1.05	0.27	0.12	0.25
09-12-507.spc	60.00	2.8	13.0	1.05	0.28	0.12	0.27
09-12-291.spc	60.00	29.3	21.1	1.05	0.32	0.16	0.36
09-13-195.spc	60.00	14.7	1.1	1.04	0.26	0.11	0.24
09-11-587.spc	60.00	36.6	34.7	1.04	0.33	0.18	0.37
09-11-121.spc	60.00	30.2	54.7	1.04	0.31	0.18	0.38
09-12-399.spc	60.00	16.8	17.1	1.04	0.27	0.12	0.26
09-11-607.spc	60.00	26.2	34.6	1.04	0.36	0.19	0.41
09-12-607.spc	60.00	35.6	6.7	1.04	0.32	0.16	0.35
09-12-054.spc	60.00	29.2	31.0	1.04	0.29	0.14	0.31

ENGINEERING DESIGN FILE

01/30/2004

Page 103 of 123

09-11-576.spc	60.00	10.6	36.9	1.03	0.33	0.16	0.36
09-12-498.spc	60.00	8.6	12.7	1.03	0.26	0.11	0.25
09-12-178.spc	60.00	35.7	24.8	1.03	0.38	0.20	0.44
09-11-507.spc	60.00	29.2	38.8	1.01	0.30	0.15	0.33
09-12-066.spc	60.00	17.3	31.0	1.01	0.28	0.13	0.30
09-12-063.spc	60.00	20.3	31.1	1.01	0.30	0.15	0.33
09-12-225.spc	60.00	5.0	25.0	1.01	0.26	0.12	0.26
09-12-080.spc	60.00	2.2	30.8	1.00	0.36	0.20	0.42
09-13-010.spc	60.00	1.5	6.4	1.00	0.28	0.13	0.29
09-11-558.spc	60.00	25.3	36.8	1.00	0.35	0.19	0.41
09-12-312.spc	60.00	8.5	21.1	1.00	0.29	0.14	0.30
09-12-187.spc	60.00	26.8	24.7	1.00	0.27	0.13	0.27
09-13-215.spc	60.00	7.0	0.8	1.00	0.34	0.19	0.41
09-13-144.spc	60.00	28.8	1.2	0.99	0.26	0.12	0.27
09-11-085.spc	60.00	6.4	56.9	0.99	0.26	0.14	0.29
09-12-270.spc	60.00	6.4	22.9	0.99	0.24	0.10	0.22
09-12-573.spc	60.00	31.4	9.0	0.98	0.25	0.11	0.23
09-11-196.spc	60.00	2.9	52.5	0.97	0.29	0.17	0.36
09-11-639.spc	60.00	7.5	34.7	0.97	0.27	0.12	0.27
09-12-195.spc	60.00	28.6	25.1	0.97	0.26	0.12	0.27
09-12-252.spc	60.00	23.1	22.7	0.97	0.24	0.10	0.22
09-11-552.spc	60.00	28.3	36.8	0.96	0.38	0.21	0.47
09-13-177.spc	60.00	20.4	1.1	0.96	0.23	0.09	0.20
09-11-426.spc	60.00	10.2	43.0	0.96	0.27	0.13	0.29
09-12-078.spc	60.00	5.5	30.8	0.96	0.25	0.11	0.23
09-13-124.spc	60.00	32.5	0.8	0.96	0.33	0.18	0.38
09-13-183.spc	60.00	18.5	1.1	0.96	0.23	0.09	0.21
09-12-514.spc	60.00	36.5	9.8	0.95	0.34	0.18	0.39
09-13-186.spc	60.00	17.5	1.2	0.95	0.25	0.11	0.24
09-11-169.spc	60.00	26.3	52.6	0.95	0.26	0.15	0.32
09-11-232.spc	60.00	24.4	50.6	0.95	0.30	0.18	0.39
09-11-453.spc	60.00	23.8	40.9	0.95	0.27	0.13	0.29
09-12-072.spc	60.00	11.4	30.9	0.95	0.28	0.13	0.30
09-13-173.spc	60.00	20.4	0.8	0.94	0.27	0.14	0.29
09-13-179.spc	60.00	18.5	0.8	0.94	0.28	0.15	0.32
09-12-492.spc	60.00	14.5	12.9	0.94	0.25	0.11	0.25
09-11-187.spc	60.00	8.7	52.5	0.94	0.28	0.16	0.35
09-12-069.spc	60.00	14.4	31.0	0.94	0.25	0.12	0.26
09-12-186.spc	60.00	31.8	25.1	0.94	0.27	0.13	0.28
09-11-178.spc	60.00	17.5	52.5	0.94	0.28	0.16	0.35

ENGINEERING DESIGN FILE

01/30/2004

Page 104 of 123

09-12-180.spc	60.00		37.7	24.9	0.94	0.31	0.16	0.36
09-11-636.spc	60.00		10.5	34.9	0.93	0.26	0.12	0.28
09-11-597.spc	60.00		29.0	34.7	0.93	0.28	0.14	0.30
09-12-271.spc	60.00		2.4	22.9	0.92	0.25	0.12	0.26
09-11-447.spc	60.00		29.8	40.8	0.92	0.27	0.13	0.29
09-13-170.spc	60.00		21.4	0.8	0.92	0.29	0.16	0.33
09-11-648.spc	60.00		2.3	34.7	0.92	0.25	0.12	0.26
09-12-177.spc	60.00		36.8	25.9	0.91	0.25	0.12	0.26
09-11-584.spc	60.00		1.6	36.7	0.91	0.31	0.17	0.37
09-12-251.spc	60.00		28.1	23.0	0.91	0.28	0.15	0.32
09-11-139.spc	60.00		14.1	54.6	0.90	0.26	0.15	0.33
09-12-318.spc	60.00		2.6	20.9	0.90	0.26	0.12	0.28
09-11-513.spc	60.00		23.3	38.8	0.89	0.28	0.14	0.32
09-11-516.spc	60.00		23.3	38.9	0.89	0.28	0.14	0.31
09-13-153.spc	60.00		26.1	1.3	0.89	0.23	0.10	0.22
09-12-495.spc	60.00		11.5	12.8	0.89	0.23	0.10	0.23
09-12-273.spc	60.00		4.4	22.9	0.89	0.24	0.11	0.25
09-11-217.spc	60.00		33.4	50.6	0.89	0.28	0.17	0.38
09-11-148.spc	60.00		5.2	54.5	0.89	0.30	0.19	0.41
09-12-081.spc	60.00		3.2	30.7	0.89	0.24	0.11	0.25
09-12-360.spc	60.00		17.2	19.1	0.89	0.27	0.13	0.30
09-12-320.spc	60.00		1.8	20.8	0.88	0.33	0.19	0.41
09-13-192.spc	60.00		15.7	1.1	0.88	0.23	0.10	0.23
09-11-136.spc	60.00		17.1	54.5	0.88	0.25	0.15	0.32
09-12-120.spc	60.00		11.4	28.9	0.87	0.27	0.14	0.31
09-12-627.spc	60.00		21.2	6.9	0.87	0.23	0.11	0.24
09-12-389.spc	60.00		27.8	16.9	0.87	0.32	0.19	0.39
09-12-096.spc	60.00		29.2	29.0	0.87	0.26	0.13	0.29
09-11-580.spc	60.00		2.7	36.4	0.85	0.24	0.12	0.25
09-11-612.spc	60.00		25.2	34.8	0.85	0.27	0.14	0.32
09-11-396.spc	60.00		1.3	45.4	0.85	0.21	0.09	0.21
09-11-241.spc	60.00		15.5	50.7	0.85	0.24	0.14	0.30
09-12-129.spc	60.00		4.0	28.8	0.84	0.28	0.14	0.32
09-13-147.spc	60.00		27.9	1.2	0.84	0.22	0.10	0.22
09-12-527.spc	60.00		26.6	10.9	0.84	0.31	0.18	0.38
09-11-444.spc	60.00		1.3	41.6	0.84	0.22	0.10	0.22
BS050935.spc	30.00	9	25.7	17.0	0.83	0.42	0.24	0.50
09-12-418.spc	60.00		1.6	16.6	0.82	0.25	0.13	0.28
09-12-621.spc	60.00		27.1	6.7	0.81	0.20	0.09	0.20
09-12-300.spc	60.00		20.3	21.0	0.80	0.29	0.16	0.35

ENGINEERING DESIGN FILE

01/30/2004

Page 105 of 123

09-12-570.spc	60.00	34.3	9.0	0.80	0.22	0.11	0.24
09-13-129.spc	60.00	33.6	0.8	0.80	0.24	0.12	0.28
09-12-339.spc	60.00	35.0	19.1	0.79	0.25	0.13	0.29
09-12-522.spc	60.00	33.6	11.1	0.79	0.22	0.11	0.24
09-11-175.spc	60.00	20.5	52.5	0.79	0.26	0.17	0.37
09-12-528.spc	60.00	27.6	11.1	0.78	0.20	0.09	0.20
09-12-127.spc	60.00	2.0	28.8	0.78	0.25	0.13	0.29
09-12-563.spc	60.00	36.9	8.8	0.76	0.37	0.22	0.48
09-11-244.spc	60.00	12.5	50.8	0.76	0.23	0.14	0.30
09-12-387.spc	60.00	31.8	17.0	0.76	0.24	0.12	0.28
09-13-176.spc	60.00	19.4	0.8	0.75	0.29	0.17	0.37
09-12-388.spc	60.00	26.8	16.7	0.74	0.24	0.13	0.28
09-11-226.spc	60.00	27.4	50.6	0.74	0.22	0.13	0.29
09-12-579.spc	60.00	25.5	9.0	0.72	0.23	0.12	0.28
09-13-081.spc	60.00	37.1	1.8	0.72	0.23	0.12	0.28
09-12-013.spc	60.00	27.0	32.7	0.71	0.23	0.12	0.28
09-13-196.spc	60.00	11.8	0.6	0.70	0.20	0.10	0.23
09-11-435.spc	60.00	2.2	43.0	0.70	0.21	0.10	0.24
09-12-480.spc	60.00	26.3	13.0	0.70	0.20	0.10	0.23
09-12-052.spc	60.00	27.2	30.8	0.70	0.30	0.17	0.38
09-11-247.spc	60.00	9.5	50.7	0.69	0.24	0.15	0.34
09-11-588.spc	60.00	37.0	35.6	0.69	0.21	0.11	0.24
09-11-434.spc	60.00	1.2	42.7	0.69	0.26	0.16	0.34
09-13-171.spc	60.00	22.3	1.1	0.69	0.18	0.09	0.20
09-12-472.spc	60.00	27.3	12.9	0.68	0.19	0.10	0.21
09-10-014.spc	60.00	36.3	56.7	0.68	0.28	0.24	0.52
09-13-167.spc	60.00	22.3	0.8	0.68	0.24	0.14	0.30
09-13-152.spc	60.00	25.2	0.8	0.68	0.26	0.15	0.33
09-13-138.spc	60.00	30.8	1.1	0.68	0.23	0.12	0.28
09-11-609.spc	60.00	28.1	34.9	0.67	0.25	0.14	0.31
09-13-211.spc	60.00	6.9	0.4	0.67	0.23	0.13	0.28
09-11-351.spc	60.00	1.2	45.6	0.67	0.19	0.10	0.22
09-13-188.spc	60.00	15.6	0.8	0.66	0.25	0.15	0.33
09-13-185.spc	60.00	16.6	0.8	0.66	0.22	0.13	0.28
09-11-482.spc	60.00	1.0	40.7	0.65	0.27	0.17	0.36
09-12-005.spc	60.00	36.6	32.9	0.65	0.20	0.12	0.24
09-11-253.spc	60.00	3.5	50.8	0.64	0.23	0.15	0.34
09-13-172.spc	60.00	19.4	0.6	0.63	0.18	0.10	0.22
09-11-391.spc	60.00	1.3	44.3	0.63	0.19	0.10	0.23
09-11-618.spc	60.00	22.2	34.9	0.62	0.23	0.13	0.30

ENGINEERING DESIGN FILE

01/30/2004

Page 106 of 123

09-13-017.spc	60.00		36.7	4.8	0.62	0.32	0.20	0.43
09-12-075.spc	60.00		8.5	30.9	0.61	0.20	0.11	0.25
09-13-014.spc	60.00		0.9	6.8	0.61	0.22	0.13	0.29
09-13-135.spc	60.00		31.7	1.1	0.61	0.24	0.13	0.31
09-13-126.spc	60.00		34.5	0.7	0.60	0.21	0.12	0.27
09-11-028.spc	60.00		18.6	57.1	0.60	0.18	0.11	0.24
09-13-127.spc	60.00		31.6	0.8	0.59	0.28	0.17	0.37
09-13-189.spc	60.00		16.6	1.1	0.59	0.18	0.09	0.21
09-11-433.spc	60.00		0.3	42.4	0.58	0.19	0.11	0.24
09-11-585.spc	60.00		2.6	36.9	0.57	0.17	0.09	0.21
09-11-223.spc	60.00		30.4	50.6	0.57	0.22	0.15	0.33
09-12-560.spc	60.00		1.4	10.8	0.57	0.23	0.14	0.31
09-12-246.spc	60.00		27.6	23.0	0.56	0.17	0.09	0.21
09-12-057.spc	60.00		26.2	31.0	0.56	0.24	0.14	0.32
09-12-227.spc	60.00		1.2	24.8	0.56	0.21	0.13	0.28
BS050943.spc	60.00	S	36.5	42.7	0.55	0.21	0.11	0.25
09-13-205.spc	60.00		8.8	0.5	0.54	0.19	0.11	0.25
09-12-282.spc	60.00		36.5	21.8	0.53	0.20	0.11	0.26
BS050946.spc	60.00	S	36.5	40.7	0.53	0.23	0.13	0.29
09-13-143.spc	60.00		27.9	0.8	0.52	0.23	0.14	0.32
09-13-199.spc	60.00		10.8	0.5	0.52	0.19	0.11	0.25
09-11-124.spc	60.00		27.3	54.5	0.50	0.21	0.14	0.33
09-11-538.spc	60.00		0.8	38.4	0.50	0.15	0.08	0.19

ENGINEERING DESIGN FILE

01/30/2004

Page 107 of 123

9.3 South Basin**Table 29. A Complete Tabulation of Fissile Mass Values Inferred During the NaI Scanning Campaign in the South Basin. Locations, Measurement Uncertainties and L_C and L_D Values are Also Listed.**

filename	LT	from		mass	error	LC	LD
		East Wall	South Wall				
09-22-941.spc	30.0	71.17	2.47	31.73	3.70	1.31	2.31
09-22-938.spc	30.0	70.75	2.47	27.46	3.26	1.22	2.16
09-19-188.spc	60.0	72.58	1.47	24.96	2.80	0.85	1.52
09-19-185.spc	60.0	70.58	1.47	10.55	1.41	0.64	1.20
09-22-152.spc	30.0	70.50	31.47	5.76	0.86	0.49	0.84
09-22-431.spc	30.0	34.50	37.47	4.94	1.36	0.84	1.66
09-20-572.spc	60.0	52.50	13.47	4.34	0.60	0.31	0.57
09-21-337.spc	60.0	38.50	18.47	4.31	0.64	0.32	0.62
09-21-792.spc	30.0	64.50	26.47	3.88	0.56	0.30	0.55
09-25-105.spc	30.0	74.25	25.47	3.08	1.54	1.01	2.07
09-25-258.spc	30.0	75.75	9.47	2.93	1.15	0.75	1.53
01-31-038.spc	30.0	38.83	41.47	2.83	0.97	0.60	1.22
09-21-611.spc	30.0	8.50	22.47	2.74	0.87	0.56	1.10
09-25-051.spc	30.0	71.25	29.47	2.62	0.56	0.36	0.72
09-21-338.spc	60.0	38.50	19.47	2.52	0.46	0.27	0.53
01-31-073.spc	30.0	7.50	42.39	2.48	0.53	0.33	0.65
09-25-261.spc	30.0	74.25	9.47	2.29	1.07	0.71	1.45
09-22-883.spc	30.0	49.50	0.47	1.80	0.85	0.53	1.08
01-31-049.spc	30.0	42.83	40.47	1.75	0.73	0.46	0.94
01-31-025.spc	30.0	48.83	42.47	1.72	0.68	0.43	0.88
09-21-341.spc	60.0	39.50	19.47	1.70	0.36	0.23	0.46
09-21-476.spc	30.0	53.50	22.47	1.60	0.73	0.48	0.96
09-22-886.spc	30.0	50.50	0.47	1.45	0.70	0.44	0.89
09-22-077.spc	30.0	6.50	25.47	1.43	0.69	0.45	0.91
09-21-773.spc	30.0	58.50	25.47	1.42	0.62	0.41	0.83
09-20-281.spc	60.0	55.16	10.47	1.42	0.55	0.35	0.74
09-22-569.spc	30.0	37.08	40.47	1.41	0.55	0.37	0.73
09-25-045.spc	30.0	74.25	30.47	1.37	0.57	0.38	0.79
09-22-095.spc	30.0	52.50	31.47	1.29	0.56	0.37	0.75
09-22-047.spc	30.0	37.50	31.47	1.28	0.44	0.30	0.59
09-23-026.spc	30.0	1.47	27.47	1.26	0.57	0.38	0.76
09-21-878.spc	30.0	49.50	28.47	1.25	0.54	0.36	0.72
09-22-113.spc	30.0	58.50	31.47	1.23	0.58	0.38	0.77

ENGINEERING DESIGN FILE

01/30/2004

Page 108 of 123

09-22-763.spc	30.0	10.50	0.47	1.23	0.42	0.27	0.55
09-21-334.spc	60.0	37.50	18.47	1.19	0.34	0.21	0.44
09-22-793.spc	30.0	20.50	0.47	1.08	0.33	0.21	0.43
09-22-958.spc	30.0	6.50	0.47	1.07	0.49	0.31	0.64
09-22-857.spc	30.0	41.50	2.47	1.07	0.39	0.27	0.53
09-25-006.spc	30.0	72.75	33.47	1.06	0.37	0.25	0.52
09-22-967.spc	30.0	3.50	0.47	1.06	0.41	0.26	0.54
09-22-961.spc	30.0	5.50	0.47	1.05	0.46	0.29	0.61
09-22-823.spc	30.0	30.50	0.47	0.99	0.30	0.20	0.41
09-20-322.spc	60.0	43.16	9.47	0.95	0.40	0.25	0.53
09-21-728.spc	30.0	43.50	25.47	0.94	0.35	0.24	0.48
09-21-731.spc	30.0	44.50	25.47	0.93	0.37	0.25	0.51
09-22-769.spc	30.0	12.50	0.47	0.92	0.29	0.19	0.39
09-23-023.spc	30.0	1.47	28.47	0.92	0.36	0.25	0.50
09-22-829.spc	30.0	32.50	0.47	0.87	0.26	0.18	0.36
02-04-001.spc	30.0	17.50	42.39	0.87	0.37	0.28	0.59
09-21-418.spc	60.0	67.00	18.47	0.85	0.37	0.23	0.49
09-21-328.spc	60.0	35.50	18.47	0.85	0.24	0.15	0.33
09-22-760.spc	30.0	9.50	0.47	0.83	0.42	0.27	0.56
09-22-128.spc	30.0	6.50	37.47	0.80	0.39	0.26	0.53
09-20-176.spc	60.0	53.50	7.47	0.80	0.26	0.18	0.38
09-22-439.spc	30.0	37.50	36.47	0.79	0.38	0.24	0.51
09-22-686.spc	30.0	19.50	40.47	0.78	0.31	0.22	0.44
09-22-259.spc	30.0	36.50	33.47	0.76	0.35	0.23	0.47
09-22-350.spc	30.0	7.50	37.47	0.76	0.34	0.23	0.48
09-21-161.spc	60.0	36.50	16.47	0.76	0.32	0.21	0.45
09-22-656.spc	30.0	8.50	40.47	0.75	0.27	0.20	0.39
09-21-035.spc	60.0	65.50	13.47	0.71	0.30	0.20	0.43
09-22-237.spc	30.0	44.50	34.39	0.70	0.30	0.19	0.42
09-21-771.spc	30.0	57.50	26.47	0.69	0.24	0.16	0.34
09-21-571.spc	30.0	21.50	21.47	0.67	0.25	0.17	0.35
09-22-448.spc	30.0	40.50	36.47	0.67	0.33	0.21	0.46
09-22-697.spc	30.0	23.50	39.47	0.66	0.33	0.21	0.45
09-22-250.spc	30.0	39.50	33.47	0.64	0.31	0.20	0.43
09-21-340.spc	60.0	39.50	18.47	0.63	0.25	0.16	0.36
09-21-343.spc	60.0	40.50	18.47	0.63	0.21	0.13	0.30
09-22-155.spc	30.0	70.50	34.47	0.62	0.28	0.20	0.41
09-22-591.spc	30.0	30.50	42.39	0.62	0.26	0.17	0.37
09-20-551.spc	60.0	45.50	13.47	0.61	0.23	0.15	0.33
09-21-486.spc	30.0	50.50	23.47	0.61	0.27	0.18	0.39

ENGINEERING DESIGN FILE

01/30/2004

Page 109 of 123

09-21-968.spc	30.0	20.50	28.47	0.60	0.27	0.19	0.38
09-22-118.spc	30.0	4.50	36.47	0.60	0.21	0.14	0.30
09-21-283.spc	60.0	21.50	18.47	0.60	0.18	0.12	0.26
01-31-070.spc	30.0	10.50	39.47	0.59	0.27	0.18	0.39
09-21-622.spc	30.0	9.50	24.47	0.58	0.27	0.18	0.38
09-21-326.spc	60.0	34.50	19.47	0.58	0.29	0.19	0.41
09-22-647.spc	30.0	10.50	40.47	0.57	0.26	0.18	0.38
09-21-821.spc	30.0	68.50	28.47	0.56	0.26	0.19	0.38
09-20-524.spc	60.0	36.50	13.47	0.55	0.27	0.18	0.40
09-22-908.spc	30.0	60.75	2.47	0.55	0.23	0.17	0.34
09-22-918.spc	30.0	63.75	4.47	0.53	0.20	0.14	0.30
09-21-014.spc	30.0	11.50	28.47	0.52	0.22	0.16	0.32
09-22-907.spc	30.0	60.75	0.47	0.51	0.25	0.17	0.36
09-21-888.spc	30.0	46.50	29.47	0.51	0.24	0.16	0.35
09-21-433.spc	60.0	70.16	21.47	0.51	0.26	0.16	0.36

ENGINEERING DESIGN FILE

01/30/2004

Page 110 of 123

9.4 South Basin Unload Pool

Table 30. A Complete Tabulation of Fissile Mass Values Inferred During the NaI Scanning Campaign in the South Basin Unload Pool. Locations, Measurement Uncertainties and L_C and L_D Values are Also Listed.

Filename	LiveTime (sec)	from	from	Inferred	error (gm)	L _C (gm)	L _D (gm)
		East Wall (ft)	S wall (ft)	Fissile Mass (gm)			
01-30-004.spc	30.00	0.25	4	40.21	4.81	1.59	2.99
09-24-089.spc	30.00	3	4	12.60	1.78	0.89	1.62
01-30-003.spc	30.00	0.25	3	10.55	1.71	0.84	1.61
01-30-013.spc	30.00	2	7	10.54	1.90	0.96	1.87
01-30-010.spc	30.00	1	5	9.99	1.39	0.64	1.19
01-30-006.spc	30.00	0.25	5	8.64	1.41	0.71	1.35
09-24-008.spc	30.00	0.25	1.25	4.37	0.85	0.52	0.97
09-24-095.spc	30.00	1	4	4.35	0.93	0.57	1.09
09-24-017.spc	30.00	3	1.25	3.20	1.09	0.70	1.38
01-30-008.spc	30.00	1	7	3.08	0.81	0.47	0.93
01-30-011.spc	30.00	2	6	3.06	0.91	0.52	1.04
09-24-020.spc	30.00	4	1.25	2.92	0.95	0.61	1.21
09-24-116.spc	30.00	8.5	7	2.81	0.54	0.35	0.63
09-24-092.spc	30.00	2	4	2.70	0.66	0.43	0.81
09-24-046.spc	30.00	13	0.25	2.47	0.53	0.32	0.62
01-30-027.spc	30.00	1	15	1.59	0.64	0.38	0.77
01-29-057.spc	30.00	15	0.25	1.19	0.53	0.32	0.65
09-24-064.spc	30.00	11	3	1.09	0.45	0.29	0.59
09-24-065.spc	30.00	11	4	1.03	0.46	0.31	0.63
09-24-016.spc	30.00	3	0.25	1.00	0.49	0.31	0.64
09-24-034.spc	30.00	9	0.25	0.92	0.45	0.29	0.60
09-24-190.spc	30.00	19.5	1	0.87	0.35	0.23	0.48
09-24-187.spc	30.00	19.25	0.25	0.86	0.38	0.24	0.51
09-24-212.spc	30.00	15	1.25	0.76	0.35	0.24	0.50
09-24-119.spc	30.00	9.5	7	0.73	0.23	0.17	0.33
09-24-050.spc	30.00	14	1.25	0.72	0.34	0.24	0.48
09-24-090.spc	30.00	3	5	0.69	0.34	0.22	0.47
09-24-237.spc	30.00	16	9	0.60	0.23	0.15	0.33
09-24-233.spc	30.00	15	8	0.52	0.21	0.15	0.31

ENGINEERING DESIGN FILE

01/30/2004

Page 111 of 123

9.5 Transfer Channel

Table 31. A Complete Tabulation of Fissile Mass Values Inferred During the NaI Scanning Campaign in the Transfer Channel. Locations, Measurement Uncertainties and L_C and L_D Values are Also Listed.

Filename	LiveTime (sec)	North Wall (ft)	position (ft)	Inferred			
				Fissile Mass (gm)	error (gm)	L_C (gm)	L_D (gm)
09-17-113.spc	60	35	10.1	34.27	2.17	0.84	1.41
09-14-117.spc	60	47.2	13.45	24.56	1.70	0.47	0.80
09-17-251.spc	60	35	10.15	22.40	1.72	0.64	1.06
09-13-573.spc	60	47	14.5	10.91	1.12	0.30	0.52
09-17-248.spc	60	34	10.15	3.80	0.77	0.33	0.63
09-14-116.spc	60	47.2	14.95	3.60	0.74	0.31	0.59
09-25-615.spc	30	153.4	12.1	2.67	0.64	0.26	0.50
09-17-110.spc	60	34	10.1	2.06	0.69	0.34	0.70
09-17-274.spc	60	41.66	12.15	2.03	0.50	0.16	0.31
09-14-120.spc	60	48	13.45	2.03	0.51	0.16	0.33
09-25-484.spc	30	114.4	8.1	1.36	0.49	0.23	0.47
09-25-391.spc	30	84.4	8.1	1.31	0.45	0.20	0.38
09-17-259.spc	60	37	11.48	1.31	0.41	0.13	0.27
09-17-297.spc	60	41	8.15	1.30	0.40	0.12	0.26
09-25-403.spc	30	88.4	8.1	1.24	0.43	0.19	0.37
09-25-568.spc	30	138.4	8.1	1.21	0.55	0.29	0.60
09-14-078.spc	60	33	13.45	1.14	0.37	0.11	0.23
09-25-592.spc	30	146.4	8.1	1.09	0.45	0.22	0.45
09-17-246.spc	60	33	8.82	1.08	0.39	0.13	0.29
09-25-340.spc	30	68.4	8.1	1.08	0.41	0.18	0.36
09-25-463.spc	30	107.4	9.6	1.05	0.40	0.18	0.35
09-17-267.spc	60	39	8.82	1.05	0.35	0.10	0.21
09-25-454.spc	30	104.4	8.1	1.04	0.43	0.21	0.42
09-25-430.spc	30	97.4	8.1	1.03	0.42	0.20	0.40
09-25-571.spc	30	139.4	8.1	1.03	0.50	0.27	0.55
09-25-586.spc	30	144.4	8.1	1.01	0.47	0.24	0.49
09-17-243.spc	60	32	8.82	1.00	0.37	0.13	0.29
09-25-562.spc	30	136.4	8.1	0.99	0.55	0.30	0.63
09-14-100.spc	60	42	15.45	0.99	0.35	0.12	0.25
09-25-616.spc	30	154.4	8.1	0.98	0.46	0.24	0.49
09-14-087.spc	60	37	13.45	0.98	0.34	0.10	0.21
09-25-418.spc	30	93.4	8.1	0.97	0.44	0.22	0.44
09-15-019.spc	60	140	15.45	0.97	0.35	0.12	0.25

ENGINEERING DESIGN FILE

01/30/2004

Page 112 of 123

09-18-114.spc	60	152	13.45	0.96	0.36	0.11	0.25
09-17-276.spc	60	41.66	8.82	0.95	0.35	0.11	0.25
09-14-079.spc	60	35	15.45	0.95	0.36	0.13	0.27
09-17-270.spc	60	40	8.82	0.93	0.34	0.11	0.24
09-17-273.spc	60	41	8.82	0.93	0.36	0.12	0.27
09-17-226.spc	60	27	11.65	0.93	0.39	0.16	0.35
09-25-460.spc	30	106.4	8.1	0.92	0.40	0.19	0.38
09-25-433.spc	30	98.4	8.1	0.90	0.42	0.20	0.42
09-25-440.spc	30	100.4	10.1	0.90	0.45	0.23	0.46
09-14-102.spc	60	42	13.45	0.89	0.32	0.09	0.20
09-18-069.spc	60	166	13.62	0.89	0.35	0.11	0.25
09-25-490.spc	30	116.4	8.1	0.89	0.47	0.25	0.52
09-25-535.spc	30	129.4	8.1	0.89	0.46	0.24	0.51
09-14-089.spc	60	38	14.95	0.88	0.51	0.28	0.59
09-25-574.spc	30	140.4	8.1	0.88	0.47	0.25	0.52
09-17-060.spc	60	17	9.1	0.87	0.33	0.10	0.23
09-18-117.spc	60	151	13.45	0.87	0.34	0.10	0.23
09-18-006.spc	60	150	14.5	0.87	0.33	0.09	0.21
09-18-123.spc	60	149	13.62	0.87	0.33	0.09	0.21
09-14-090.spc	60	38	13.45	0.86	0.38	0.15	0.35
09-25-427.spc	30	96.4	8.1	0.85	0.42	0.21	0.44
09-18-012.spc	60	152	14.5	0.84	0.33	0.10	0.23
09-25-400.spc	30	87.4	9.6	0.84	0.38	0.18	0.36
09-25-607.spc	30	151.4	8.1	0.84	0.40	0.20	0.41
09-18-120.spc	60	150	13.45	0.84	0.33	0.10	0.23
09-25-406.spc	30	89.4	8.1	0.83	0.37	0.17	0.34
09-15-127.spc	60	104	15.45	0.83	0.33	0.11	0.25
09-17-160.spc	60	7	12.15	0.83	0.36	0.15	0.32
09-17-264.spc	60	38	8.82	0.81	0.31	0.09	0.21
09-25-487.spc	30	115.4	8.1	0.81	0.47	0.25	0.53
09-25-556.spc	30	134.4	9.6	0.80	0.48	0.26	0.56
09-14-115.spc	60	47.2	15.45	0.80	0.35	0.15	0.32
09-25-343.spc	30	69.4	8.1	0.80	0.35	0.16	0.31
09-18-009.spc	60	151	14.5	0.80	0.32	0.10	0.22
09-25-580.spc	30	142.4	8.1	0.79	0.44	0.24	0.49
09-17-139.spc	60	0	12.15	0.78	0.36	0.15	0.33
09-14-069.spc	60	30	13.45	0.77	0.31	0.09	0.20
09-14-095.spc	60	40	14.95	0.77	0.46	0.25	0.53
09-17-192.spc	60	17	9.65	0.77	0.32	0.10	0.24
09-25-509.spc	30	121.4	10.1	0.77	0.40	0.20	0.41

ENGINEERING DESIGN FILE

01/30/2004

Page 113 of 123

09-25-394.spc	30	85.4	8.1	0.76	0.36	0.17	0.35
09-14-063.spc	60	23	13.45	0.75	0.30	0.08	0.18
09-17-261.spc	60	37	9.65	0.75	0.31	0.10	0.22
09-17-256.spc	60	36	11.48	0.75	0.31	0.11	0.24
09-14-178.spc	60	66	15.45	0.75	0.32	0.12	0.27
09-18-063.spc	60	167.4	13.45	0.74	0.33	0.12	0.26
09-14-123.spc	60	49	13.45	0.74	0.30	0.09	0.20
09-17-187.spc	60	16	11.4	0.73	0.37	0.17	0.37
09-14-099.spc	60	41	13.45	0.73	0.30	0.09	0.22
09-25-388.spc	30	83.4	8.1	0.73	0.37	0.18	0.38
09-17-133.spc	60	42	11.1	0.72	0.34	0.14	0.30
09-18-106.spc	60	154	15.45	0.72	0.42	0.20	0.44
09-14-126.spc	60	50	13.45	0.72	0.30	0.09	0.21
09-18-111.spc	60	153	13.45	0.72	0.33	0.12	0.27
09-14-003.spc	60	2	13.45	0.72	0.31	0.10	0.23
09-18-072.spc	60	165	13.45	0.72	0.32	0.10	0.24
09-14-037.spc	60	14.8	15.45	0.71	0.32	0.12	0.27
09-14-162.spc	60	60	13.45	0.71	0.29	0.08	0.18
09-25-379.spc	30	80.4	8.1	0.71	0.37	0.18	0.38
09-17-258.spc	60	36	9.65	0.70	0.30	0.10	0.23
09-14-108.spc	60	44	13.45	0.70	0.29	0.09	0.20
09-14-171.spc	60	63	13.45	0.70	0.29	0.08	0.18
09-17-253.spc	60	36	11.48	0.70	0.31	0.11	0.24
09-25-595.spc	30	147.4	9.6	0.70	0.41	0.21	0.45
09-14-033.spc	60	12	13.45	0.70	0.29	0.08	0.18
09-25-385.spc	30	82.4	8.1	0.69	0.34	0.16	0.32
09-25-409.spc	30	90.4	8.1	0.69	0.37	0.19	0.39
09-17-189.spc	60	16	9.65	0.68	0.30	0.10	0.23
09-25-382.spc	30	81.4	8.1	0.68	0.34	0.16	0.33
09-15-157.spc	60	94	15.45	0.68	0.31	0.11	0.24
09-25-367.spc	30	76.4	8.1	0.68	0.33	0.15	0.32
09-14-021.spc	60	8	13.45	0.68	0.28	0.08	0.18
09-17-185.spc	60	15	10.15	0.68	0.36	0.17	0.36
09-15-057.spc	60	128	13.45	0.67	0.28	0.08	0.19
09-14-112.spc	60	46	15.45	0.67	0.31	0.12	0.27
09-15-097.spc	60	114	15.45	0.67	0.30	0.11	0.24
09-25-370.spc	30	77.4	8.1	0.67	0.35	0.17	0.35
09-14-160.spc	60	60	15.45	0.66	0.30	0.11	0.24
09-18-113.spc	60	152	14.95	0.65	0.32	0.14	0.30
09-17-117.spc	60	36	9.1	0.64	0.29	0.10	0.23

ENGINEERING DESIGN FILE

01/30/2004

Page 114 of 123

09-14-039.spc	60	14.8	13.45	0.63	0.28	0.08	0.18
09-18-068.spc	60	166	14.95	0.63	0.33	0.15	0.33
09-14-084.spc	60	36	13.45	0.63	0.29	0.09	0.21
09-14-015.spc	60	6	13.45	0.63	0.28	0.08	0.19
09-14-018.spc	60	7	13.45	0.63	0.28	0.08	0.20
09-18-003.spc	60	149	14.5	0.63	0.28	0.09	0.20
09-18-075.spc	60	164	13.45	0.63	0.30	0.10	0.24
09-25-598.spc	30	148.4	9.6	0.63	0.38	0.20	0.42
09-14-081.spc	60	35	13.45	0.62	0.29	0.09	0.22
09-17-255.spc	60	36	9.65	0.62	0.29	0.10	0.23
09-14-186.spc	60	68	13.45	0.61	0.28	0.08	0.19
09-18-062.spc	60	167.4	14.95	0.61	0.38	0.19	0.42
09-25-346.spc	30	70.4	8.1	0.61	0.31	0.14	0.30
09-25-529.spc	30	128.4	9.6	0.61	0.36	0.19	0.40
09-15-054.spc	60	129	13.45	0.61	0.27	0.08	0.19
09-18-121.spc	60	149	15.45	0.61	0.32	0.14	0.30
09-18-067.spc	60	166	15.45	0.60	0.36	0.17	0.37
09-14-006.spc	60	3	13.45	0.60	0.28	0.09	0.21
09-14-231.spc	60	82	13.45	0.60	0.27	0.08	0.20
09-18-015.spc	60	153	14.5	0.60	0.30	0.11	0.25
09-18-078.spc	60	163	13.45	0.59	0.29	0.10	0.23
09-18-056.spc	60	167	15	0.59	0.36	0.18	0.39
09-17-222.spc	60	25	8.82	0.59	0.31	0.13	0.29
09-14-195.spc	60	71	13.45	0.59	0.27	0.08	0.18
09-18-023.spc	60	156	15	0.58	0.35	0.17	0.38
09-25-461.spc	30	106.4	10.1	0.58	0.36	0.18	0.38
09-14-105.spc	60	43	13.45	0.58	0.27	0.09	0.20
09-14-097.spc	60	41	15.45	0.58	0.35	0.17	0.38
09-14-136.spc	60	53	15.45	0.57	0.28	0.10	0.22
09-17-223.spc	60	26	12.15	0.57	0.30	0.12	0.28
09-14-156.spc	60	58	13.45	0.57	0.27	0.08	0.19
09-17-120.spc	60	37	9.1	0.56	0.28	0.09	0.22
09-18-018.spc	60	154	14.5	0.56	0.30	0.11	0.26
09-15-120.spc	60	107	13.45	0.56	0.25	0.07	0.17
09-18-021.spc	60	155	14.5	0.55	0.30	0.11	0.27
09-14-153.spc	60	57	13.45	0.55	0.26	0.07	0.17
09-14-181.spc	60	67	15.45	0.55	0.29	0.11	0.26
09-15-016.spc	60	141	15.45	0.55	0.29	0.11	0.26
09-15-037.spc	60	134	15.45	0.54	0.28	0.10	0.24
09-14-205.spc	60	74	15.45	0.54	0.29	0.12	0.28

ENGINEERING DESIGN FILE

01/30/2004

Page 115 of 123

09-14-042.spc	60	16	13.45	0.54	0.26	0.08	0.19
09-15-060.spc	60	127	13.45	0.53	0.26	0.08	0.20
09-18-087.spc	60	161	13.45	0.53	0.29	0.11	0.25
09-15-126.spc	60	105	13.45	0.53	0.25	0.07	0.18
09-17-157.spc	60	6	12.15	0.53	0.33	0.15	0.34
09-25-349.spc	30	71.4	8.1	0.53	0.30	0.14	0.30
09-17-249.spc	60	34	8.82	0.53	0.29	0.12	0.27
09-17-252.spc	60	35	8.82	0.52	0.29	0.11	0.26
09-14-180.spc	60	66	13.45	0.52	0.25	0.07	0.17
09-14-012.spc	60	5	13.45	0.52	0.25	0.08	0.18
09-15-003.spc	60	146	13.45	0.52	0.25	0.08	0.19
09-15-123.spc	60	106	13.45	0.52	0.25	0.08	0.18
09-14-142.spc	60	54	15.45	0.52	0.29	0.12	0.27
09-18-066.spc	60	167	13.45	0.52	0.29	0.11	0.26
09-18-084.spc	60	162	13.45	0.51	0.28	0.10	0.24
09-14-119.spc	60	48	14.95	0.51	0.32	0.16	0.35
09-14-183.spc	60	67	13.45	0.51	0.25	0.08	0.18
09-25-358.spc	30	73.4	8.1	0.50	0.29	0.14	0.29
09-15-189.spc	60	84	13.45	0.50	0.25	0.08	0.20
09-14-091.spc	60	39	15.45	0.50	0.31	0.14	0.33

ENGINEERING DESIGN FILE

01/30/2004

Page 116 of 123

10 REFERENCES

-
- ¹ EDF-1729 Rev. 1, "INTEC 603 GFO and Basin Scanning Systems Feasibility Assessment", D. W. Akers, Nov. 2002
- ² EDF-1848, "Basin Scanning System SO Test Requirements", D. W. Akers, Oct. 2002
- ³ EDF-1944, " INTEC 603 Rack Scanning System SO Test/Preliminary Calibration Report", D. W. Akers
- ⁴ EDF-2845, "INTEC 603 Basin Scanning System SO Test Report/Preliminary Calibration Report"
- ⁵ EDF-1986 Rev. 1, " INTEC 603 High Rate Basin Scan System SO Test/Calibration Report", D. W. Akers
- ⁶ "Characterization of TRIGA Fuel", N. Tomsio, GA Project 3442, Oct, 1986
- ⁷ J. K. Hartwell, Private Communication, May 2002
- ⁸ INEL-96/0482, "Radionuclide Mass Inventory, Activity, Decay Heat, and Dose Rate Parametric Data for TRIGA Spent Nuclear Fuels", J. W. Sterbentz, March 1997
- ⁹ Correspondence, "Contract No. DE-AC07-99ID13727 - Transmittal of Spreadsheet in Response to Request 36, 'TRIGA Fuel Data' ", July 2002
- ¹⁰ "Limits of Qualitative Qualitative Detection and Quantitative Determination", L. Currie, Analytical Chemistry, 25(3), 586, March 1968